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GERONTAL CONSTIPATION AND ITS TREATMENT.*

BY

W. AINSLIE HOLLIS, M.D.,

PAST PRESIDENT OF THE BRITISH MEDICAL ASSOCIATION.

ETIOLOGY.

A. *Prostatic Enlargement.*

IT has been estimated that 30 per cent. of men over 60 years of age suffer from hyperplasia of the prostate. If to these sufferers we add others in whom a very large prostate "may give rise to no appreciable symptoms,"[1] and may consequently remain undiscovered, the total percentage of elderly men in whom this organ is abnormally large is probably still higher. Situated as the prostate is between the bony unyielding symphysis and the rectum, any general enlargement of the organ exerts a flattening pressure upon the gut where it is in relation with the sacrum and coccyx. The gerontal tumour will be in the upper rectum just below the sigmoid flexure, and close to one of the usual sites of intestinal stasis. During the act of defaecation the plastic contents of the lower colon require a free passage into the rectum. A comparatively slight obstruction at this point may lead to a serious block.

B. *Ineffective Peristalsis.*

Recent investigations suggest that, so far as the propulsion of its contents is concerned, the alimentary canal can be divided into a series of sections, each of which, through its neuro-muscular apparatus, forms a more or less independent zone of rhythmic contractions. Seemingly these movements start vigorously as a rule at the upper junction of a zonal area and fade away gradually towards the lower one. As regards the automatism of the rhythmic contractions, the parts of the digestive tract situated near the orifices are least automatic in character, and most under the influence of the cerebro-spinal co-ordinated reflexes. On the other hand, the rhythmic movements of the central, that is, the jejuno-iliac, segment of the bowel probably furnishes "the only example known so far (1900) of a true co-ordinated reflex dependent entirely on peripheral nervous structures."[2] It is well known that in the neuroses associated with senility "disassociation follows the usual law of degeneration, and passes progressively from the unstable to the stable, from the less organized to the more organized, and from the less to the more automatic."[3] In accordance with this law (?) the intestinal mid-segment will be the last to yield its automatism to senile decay, and so perhaps it is. On the other hand, stasis, with or without distension of the lower colon, and spasmodic contraction of the gut immediately above the obstruction, is a common result of this disorder. By the position of the cord-like tumour—representing the contracted bowel—whether it is above or below the splenic flexure, the severity of the obstruction can be to some extent gauged by the medical attendant.

C. *Dryness of the Intestinal Mucosa.*

A comparatively small prostatic tumour, situated near the junction of two rhythmic zones, might presumably cause stasis. Recent researches suggest that one of the functions of the colon is the absorption of water.[4] Undue dryness of the faecal accumulation within the lower bowel will follow prolonged retention. "Peristalsis," and its analogue "vermiculation," can only be carried on so long as the two glissading surfaces—namely, that of the living tube and the side of the inert material adjacent to it—are freely moistened. The earthworm, for instance—to take a well-known *Oligochaete*—forms its tunnels in moist and plastic soil.[5] Although well provided with segmental nephridia with which it excretes a fluid to lave its epidermal coat, it rapidly withers and dies when placed on dry soil. Our intestines, although they, too, are provided with excretory crypts (Lieberkühn's), that produce the succus entericus, laving the mucosa, yet cannot satisfactorily propel hardened scybala through the bowels. In neither of these two cases of rhythmic contractile movement can progressive or propulsive results be fully brought about, unless and until the inert material is in a condition to react to the constrictions of the living tube; in other words, that material must be plastic, and, as a consequence, moist. Unfortunately, as above mentioned, old men are handicapped in two directions as regards this necessary accompaniment to a satisfactory peristalsis. Owing to the delay that so often occurs at the recto-sigmoidal juncture not only are the faeces dry, but the mucosa of the lower rectum at all events is usually abnormally dry also. Perhaps a dryness of the inner membrane of the gut may be in some cases general throughout the colon. However this may be, the dryness leads to excessive straining at stool, and may also account for the comparative frequency with which "volvulus" of sigmoid affects old men,[6] the twisting of the gut being an immediate consequence of an overstrain.

Historic Precedents.

There are certain incidents which recur in the history of patients who suffer from this disorder, and recur with sufficient frequency to justify an inquiry as to whether or no there may be some causal relationship between them. After the age of 45 dietary indiscretions, undue sexual excitement, and inattention to the regular action of the bowels are, in my experience, the most usual coincidents. As regards the first, old men have long had a reputation for enjoying the pleasures of the table. Indeed, the ancient Greeks, who reverenced the antique, set aside special vintages for their consumption. They even coined a word—"gerousios"—to label this *αἶθοψ οἶνος*, this sparkling wine, as Homer calls it.[7] Moreover, they took care that the "gerousios oinos" was only drunk at these aldermanic carousals. The similarity of the spelling of the Greek word "gerousios" and its English equivalent (in that case) suggests to my mind a derivational relationship—an opinion *not* presumably held by the expert compilers of the Oxford *New English Dictionary*. Still, the reputation of the "agèd, agèd man a-sittin' on a gate" concerns us only so far as it indicates that the above mode of life favours the development of the disorder in question. I think that it does so in two directions. One of the commonest signs of good living when the first bloom of youth has "faded and gone" consists in an increasing girth of the lower *torso*. A tendency to corporeal expansiveness may in some cases be heritable; but, even so, careful dieting with a goodly proportion of fruit and total abstinence of alcohol will frequently check the tendency. It will also assist in checking the excessive straining at stool, and so prevent the early onset of "irritable heart," in my opinion the second most annoying symptom of gerontal constipation, and one which we shall subsequently find is by no means an uncommon accompaniment of the disorder.

Anent the other historic incidents, the learned Hebenstreit informs us in his book, *De homine sano et aegroto* (1753), p. 158, that men lose their youthful vigour later in life than do women:

> Serior est maribus languor, viridisque senecta
> Sufficit ad validos motus, et sepius illis
> Grata juventutis facies internitet annis,
> Et Veneres illis rident Charitumque cohortes, etc.

But even they eventually die of *marasmus*, a drying up. Meanwhile they suffer (according to the equally learned Rieger), oft "from an accumulation of humours in the big vessels . . . whence their stases and stagnations, etc." Indeed, the latter commentator draws a very complete picture of an old man affected by gerontal constipation. Rieger even mentions "palpitation" as a common accompaniment of this condition. He also says that "coctio debilitatur," digestion is enfeebled, and furthermore, we may get among other troubles, "dysuria, stranguria, calculus, ischuria," and so on.[9]

SIGNS AND SYMPTOMS.

I shall not attempt to describe in detail the many disorders that are supposed to circle around a diseased prostate. Suffice it to say that the most serious are distinctly surgical in character. Nevertheless there are symptoms which may be considered as specially diagnostic of gerontal constipation, and these we must explain in some detail.

It would seem that some, perhaps a majority, of the cases of simple enlargement of the prostate begin with venous congestion. A serious change in the blood supply

* Gerontal, from Greek *gerōn*, old man. Gerontal constipation means a disorder of senility affecting men only.

of the gland, which such a circulatory failure implies, would alone suggest the probability of some central (cardiac) causation, either organic or functional, and this conjecture is strongly confirmed if, as is often the case, we find the venules of the face, the nose in particular, also affected. When this is so, the elderly patient also suffers, as a rule, from those interesting, though to the ordinary general practitioner somewhat intricate, symptoms suggesting an "irritable heart," only to be fully diagnosed by an expert in such matters, aided, it may be, by some wonderful electric devices with numerous dial faces and leather straps. The most relevant discovery in this regard is, I take it, the close histological relationship that has been noted between the structural elements constituting the so-called mesenteric plexus (Auerbach's tissue) and "the nodal tissue in which the heart beat arose and the bundle by which the impulse was distributed in the heart."[6] Experience shows that Rieger was right in giving prominence (about two centuries ago) to the fact that old men often suffered from palpitation. Tachycardia, dropped beats, irregular action of the heart, are frequently secondary to the intestinal stasis of gerontal constipation. Another anomalous symptom, by no means unusual, is probably due to the direct influence of the rectal tumour. It consists in a feeling of distension in the upper rectum, just as though a scybalon had lodged there and might at any moment descend into the trousers.

TREATMENT.

After all, the true worth of a medical treatise is best gauged by the efficiency of the prescribed treatment in bringing about, if not the cure, at all events the relief of the disorder. It is here, then, that an author has an opportunity to display his mother wit to the best advantage. "But, as Yak the Metaphysician hath written:

> The wits are a dog that 'tis easy to call
> but to cudgel him proveth another affair:
> for shouts and abuse
> are no manner of use
> and unless he agrees, it is safe to declair
> that the cudgelling process won't happen at all."[10]

The present writer feels the difficulty in this regard, and therefore offers the following suggestions with due diffidence.

The treatment of gerontal constipation can be best considered under three heads: Medicinal, dietetic, and manipulatory. So far as drugs in general are concerned, it is evident that their action can at best be only palliative. Within these limitations and as a preventive of a colic block doses of the aromatic syrup of cascara are very useful. The drug, as is well known, "acts principally on the large intestine and empties the rectum. It is suitable for delicate and elderly persons."[11] It would seem probable, from the action of this drug, that some constituent of cascara sagrada acts specially on the mesenteric neuro-muscular plexus in the colon and so stimulates the rhythmic movements. The medicine ought to be given in a full dose directly any falling off in quantity or quality of the daily evacuation is observable. The treatment of the senile heart is, in my experience, best effected by small doses of the tincture of strophanthus in a little water, to which a few grains of sodium bicarbonate have been added. This mixture may be taken three times daily, about half an hour after a meal. It was recommended some years ago by a correspondent of this JOURNAL as a useful palliative of this condition.

As regards diet, I have already drawn attention to the value of fruit; here I need merely add that the ordinary rules regarding the modified requirements of the aged man for meats and the satisfactory mastication of food should be in all cases carefully observed. Dental hygiene is also very important, knowing as we now do, thanks largely to the American dentists, how the flora and fauna of pyorrhoea flourish in the uncleanly mouth. The less stimulant the old man absorbs the better his ultimate chance of longevity.

We now come to what is in many respects the most important part of this paper—that is to say, the part where the "cudgelling process" of the writer's brains is mostly required. When by daily increasing strain the old man begins to perceive that a visit to his doctor is imperative, much mischief may already have been inflicted upon the mucosa and blood vessels about the anus. In the treatment of gerontal constipation cleanliness is undoubtedly the most important manipulative procedure. Congested piles, rents in anal mucosa, commencing prolapse, all rapidly yield as a rule to a régime of cleanliness. But in order that the hygienic procedure may produce the maximum effect, it must be started early. When there is much straining at stool, the gerontal right index-finger, well guarded, it may be, with two or three thicknesses of tissue paper, should be pressed upon the perineum just behind the symphysis, and so relieve the abnormal pressure of an enlarged prostate upon the rectum.

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SARCOMA OF FRONTAL LOBE GIVING RISE TO OCULAR SIGNS ONLY.

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THE case here reported must belong to a rare group of cases, and the record is therefore of interest.

The patient was a bricklayer, aged 34, who was admitted under my care at the General Hospital, Birmingham, on October 27th, 1915, having been under observation as an out-patient for two weeks previously. He had suffered from rheumatic fever at the age of 19, and had had an attack of gonorrhoea at the age of 25. Otherwise his health had been good down to within a few months. There was nothing in his family history of any note.

History.

About four months ago he noticed that almost every night he was kept awake by a pain in his right eye, giving rise to the sensation "that his eye was being pulled out." During the day very little was noticed, but towards evening he experienced shooting pains. About a month later he noticed the right eye becoming prominent. He then sought advice at a local hospital. Since then his condition had grown worse, until he was unable to open the right eye properly. He described his head as being "muddled at times." He stated that he had never seen double.

Physical Signs.

There was a moderate degree of right exophthalmos, and the eye was also displaced downwards and a little outwards. There was considerable though not complete ptosis, the frontalis muscle being used when an attempt was made to open the eye. The roof of the orbit appeared to be filled in, and lower than normal. It was firm to touch and not painful.

Corneal sensation was good, and the pupil reactions normal in all respects. Sensation was not quite normal over the area supplied by the supraorbital nerve.

The right fundus showed marked optic neuritis with a fair degree of swelling; there were some retinal haemorrhages in the region of the disc, and the retinal veins were engorged. The left fundus showed early optic neuritis; the upper and lower edges of the disc were blurred and a little swollen, and there was a retinal haemorrhage near the upper part of the disc. The optic neuritis was of the increased pressure type.

* Hippocrates flourished in Greece in the fifth century before Christ. Among other discoveries, he announced to the world that the bald were not usually afflicted with varicose veins (*Aph.* vi, 34). He also presented the Royal College of Physicians of London with a motto, which many read and few understand. Indeed, the most plausible translation was one made by a disappointed Fellow. It was as follows: "*The patient's life was short: but then the surgical technique was great!*"

My colleague, Mr. Woodman, made a thorough examination of the nose and accessory sinuses. Transillumination showed nothing pathological, and there was no evidence of any intranasal disease. The pharyngeal ends of the Eustachian tubes were enlarged and oedematous. A radiograph showed nothing definite, but the orbital roof on the right side was not as well defined as on the left.

There was a faint haze of albumin in the urine. The Wassermann test was negative. The pulse-rate was normal, but fell once after admission to 64. The temperature on admission was 99.4°, and afterwards fluctuated between 97° and normal. He was admitted with the diagnosis of orbital growth, probably sarcoma growing from the region of the sphenoid.

There was never any sickness nor complaint of any headache. He died on November 5th with typical respiratory failure. For about forty-eight hours before death he was rather peculiar mentally, and got up during the night and wandered about the ward. He never displayed any general symptoms to suggest intracranial trouble.

Post-mortem Examination.

I was present at the *post-mortem* examination, which was made by the pathologist, Dr. L. Walker. No abnormality was found apart from the central nervous system and orbit. The meningeal coverings over the orbital surface of the right frontal lobe of the brain were almost a quarter of an inch thick. The membranes were vascular and adherent both to the brain and roof of the orbit. The bone here, as well as in the neighbourhood of the nasal sinuses, was eroded, soft, and friable, being largely replaced by fibrous-looking tissue. The orbital roof was considerably displaced downwards. Tissue of fibrous character was present in the orbital cavity, involving the contents. There was nothing present definitely resembling sarcoma. The nasal cavities were quite healthy. Tissues from the orbit were removed for microscopical examination, and the brain removed and hardened in formalin. The orbital surface of the frontal lobe was very firm, and a piece was removed for microscopical examination. When the hardened brain was examined, the right frontal lobe was found to contain a tumour about the size of a Tangerine orange; the swelling projected mesially and caused a considerable depression in the left frontal lobe. The edge of the growth was ill-defined, and there was no capsule. Microscopically, it was a typical round-celled sarcoma, and the tissues removed from the right orbit showed a sarcomatous infiltration of the same nature. In my opinion the growth started in the brain and extended to the orbit.

IN the *American Journal of Obstetrics* for October, Foskett reports the case of a single woman, aged 22, employed in an hotel, who was advised to take a bichloride douche. She dissolved three tablets of 7.3 grains each in a cup of water, and used a whirling spray syringe for the douche. At once a severe local burning sensation was experienced, and the patient went to a physician, who promptly ordered albumin water to be taken by the mouth; douches and ointments were prescribed for the external parts. Three days later Foskett was called in, and found the vagina and vulva covered with a white slough; the mucous membrane of the mouth, uvula, and pharynx was likewise white and sloughy, and there was salivation. For the first few days there was almost complete suppression of urine; what was passed contained albumin, and granular and hyaline casts, but no mercury could be detected, nor could any trace of that metal be found in blood taken from a vein. Hot packs were applied every six hours, and high colon irrigations were employed four times daily; saline aperients given by the mouth caused free catharsis. The patient, in spite of all care, became worse; bleeding from the mouth and epistaxis occurred on the fifth and sixth days, and separation of sloughs and haemorrhage from the vagina on the seventh, with dysphagia and hiccough. Blood clots were vomited on the ninth day and the throat was sore, and the fauces oedematous from separation of sloughs. The mental condition was bad, the patient being irrational and restless. The urine was excreted in normal quantities but could not be retained. There was more haemorrhage from the mouth and vagina, and on the eleventh day melaena was observed, and recent clots were also passed from the bowel. Haematemesis followed, and the patient died early on the twelfth day. In many other recorded instances of poisoning when bichloride had been used for douches in the puerperium and in operations on the pelvic organs, salivation was absent but profuse diarrhoea occurred.

Notes on Military Orthopaedics.

II. ON SUTURE OF NERVES, AND ALTERNATIVE METHODS OF TREATMENT BY TRANSPLANTATION OF TENDON.

BY

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(Continued from p. 643.)

IN the first part of this paper I considered some general principles which should guide the surgeon in the treatment of limbs disabled by injuries involving nerves. I pointed out the importance of giving the muscles ample time and opportunity to recover by keeping them in a relaxed position for a sufficiently long period, and I began the discussion of tendon transplantation as an alternative method of treatment where nerve suture was not possible. I now propose to consider the transplantation operations my experience leads me to recommend in various injuries.

UPPER LIMB.

Irreparable Injury of Musculo-spiral Nerve.

1. In cases of musculo-spiral injury the deformity is a dropped wrist, with loss of the power of extending the fingers. The uncontrolled action of the flexor group causes the fingers to curl into the palm, and the hand to become useless.

In such a case:

(*a*) The flexor carpi radialis and the flexor carpi ulnaris can be transplanted into the paralysed extensor of thumb and fingers; and

(*b*) in addition the pronator radii teres may be affixed to the two radial extensors.

Transplantation of Pronator Radii Teres and the Radial and Ulnar Flexors in Musculo-spiral Paralysis.

I would recommend for this condition of musculo-spiral paralysis the double operation (*a*) and (*b*), and I will briefly indicate the method of its performance.

With the forearm midway between pronation and supination an incision is made along the radial border of the forearm in its middle third. Under cover of the tendon of the supinator longus the pronator radii teres will be found where it becomes inserted into the outer border of the radius. From this it is detached, and is then inserted into the tendons of the extensor carpi radialis longus and brevis, which lie closely applied to it on the dorsal surface.

A horseshoe incision, with the convexity resting on the back of the carpus, with the two straight sides extending along the radial and ulnar borders, is now made. Through the lateral aspects of this incision the tendons of the carpi ulnaris and radialis are identified, and are detached from their insertion as near the carpus as possible.

The tendons are brought round the ulna and radius respectively in very slanting fashion, and are then attached to the extensors of the fingers and thumb, the carpi ulnaris being attached to the tendons of the three inner fingers and the flexor carpi radialis to those of the thumb and index finger. The method of fixation should be neat and workmanlike.

Injury to Median and Ulnar Nerves.

In the case of great damage to the median and ulnar nerves, operations on tendons alternative to those on the nerves will be very rarely required as compared with those on the external popliteal and the musculo-spiral, for the reason that by means of flexion of the elbow a gap of two or three inches in the median may be closed up; by flexing the elbow and displacing the ulnar to the front a similar space in this nerve can be obliterated. End-to-end suture, therefore, is much more easily secured in these two nerves than in the case of the musculo spiral and external popliteal.

In cases of complete and irreparable paralysis of the muscles supplied by the median nerve the only active muscles on the flexor aspect of the forearm are the flexor carpi ulnaris and the inner half of the flexor profundus digitorum.

Operation of Transplantation of Tendons in Median Paralysis.

(*a*) The outer tendons of the flexor sublimis are inserted into the inner tendons of the flexor profundus digitorum.

(*b*) The inner tendons of the flexor sublimis are inserted into the tendon of the flexor carpi ulnaris. The extensor carpi radialis longior is attached to the flexor longus pollicis.

Method.—A curved incision is made convex downwards with the apex just above the anterior annular ligament of the wrist. After retracting the flexor sublimis tendons, the outer two tendons of the flexor profundus are inserted into the two active inner tendons of the same muscle. The flexor ulnaris is then divided close to its insertion, and between the two portions of its split end the tendons of the flexor sublimis to the four fingers are inserted. The tendon of the extensor carpi radialis longior is now found at the outer border of the incision, and after division is inserted into the tendon of the flexor longus pollicis round the outer border of the radius.

FIG. 8.—Tendon of peroneus longus divided in its course, and identified at the outer border of the foot.

FIG. 9.—Tendon of peroneus longus drawn out through the lower incision.

Operation of Transplantation in Complete Paralysis of the Ulnar.

The two inner tendons of the flexor profundus are attached to the two outer.

The palmaris longus is inserted into the tendon of the flexor carpi ulnaris.

After-Treatment.

After operations for musculo-spiral paralyses the hand should be kept dorsiflexed until recovery of the muscle is complete. When the grafted muscles are acting sufficiently well and strongly to lift the hand and fingers, the time will have come for gradual training in co-ordination and balanced movement. Even after the patient has learnt to use his hand it is still necessary that he should continue to wear a dorsiflexion splint at night to prevent contractures of the flexors during sleep.

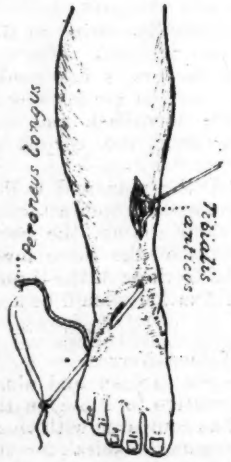

FIG. 10.—Tendon of peroneus longus about to be drawn through the incision opposite the annular ligament under which it has to pass.

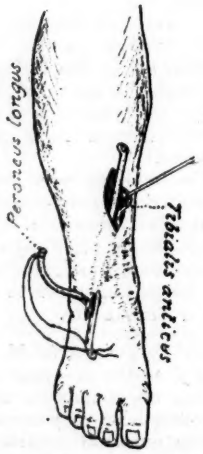

FIG. 11.—Tendon of peroneus longus about to be drawn under the annular ligament to be inserted in the tibia.

LOWER LIMB.

Paralysis of the Anterior Crural Nerve.

Transplant the sartorius and biceps into the patella.

An alternative measure would be the application of a knee cage with an extension spring to take the place of the paralysed quadriceps. This should be worn permanently.

PARALYSIS OF MUSCLES SUPPLIED BY EXTERNAL POPLITEAL NERVE.

The anterior group of muscles and the peronei are paralysed. The deformity is a dropped foot with varus due to gravity and the uncontrolled action of the muscles attached to the tendo Achillis and of the tibialis posticus.

Tendon Transplantation.

There is not much scope for effective tendon transplantation in this injury, except in cases in which only particular branches of the nerve have been picked out. For instance, an injury paralysing the two peronei muscles, but leaving the anterior tibial nerve intact, would result in a deformity consisting chiefly of inversion of the foot at the mid-tarsal joint—that is, pes varus. In such cases, transplantation of the insertion of the tibialis anticus into the dorsum of the cuboid or into the base of the fifth metatarsal, replaces the loss of the evertors, and restores the balance of the foot.

FIG. 12. — Tendon of tibialis anticus being drawn taut, the foot being kept at right angles; tendon is then cut and passed through a tunnel in the tibia. The tendon of the peroneus longus is shown drawn up through the same opening.

Tendon Fixation.

In cases of more extensive paralysis there is not sufficient muscle power remaining for it to be effectually distributed; there is, so to say, not enough power to go round. Tendon fixation is then the best operative procedure, for it establishes a firm barrier against drop-foot, and yet allows useful mobility. Tilanus, of Holland, suggested tendon fixation for certain types of flail-foot many years ago, and I am hoping that it will prove increasingly useful in military surgery.

The object of tendon fixation is to utilize the tendons of completely paralysed muscles as accessory ligaments to hold a paralysed foot in a correct position. This can be brought about in an endless variety of ways, and will supply the ingenious surgeon with many interesting and useful problems for reflection. Personally, after many successful operations, I would recommend this method of treatment to meet the disabilities of paralysis due to injury of the external popliteal.

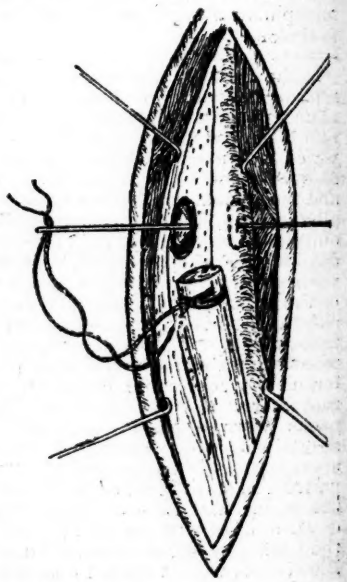

FIG. 13.—Tendon of peroneus longus about to be drawn through the hole drilled in the tibia.

An Operation for Tendon Fixation in Drop-foot due to Injury of the External Popliteal Nerve.

Two small incisions are made along the course of the peroneus longus tendon. The first is placed over the tendon, just before it turns round the outer border of the foot (Fig. 8) on to the sole, and the other about three to

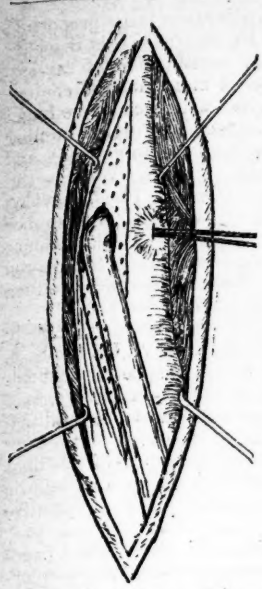

FIG. 14.—Tendon of peroneus longus drawn through the tibia.

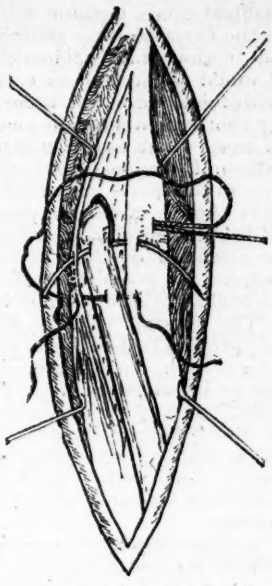

FIG. 15.—Tendon of peroneus longus about to be stitched to the periosteum of the tibia.

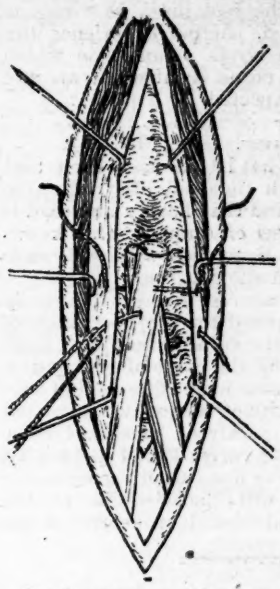

FIG. 16.—Tendons of peroneus longus and tibialis anticus inserted into a groove made on the surface of the tibia, showing the periosteum raised and drawn aside before being sewn in place.

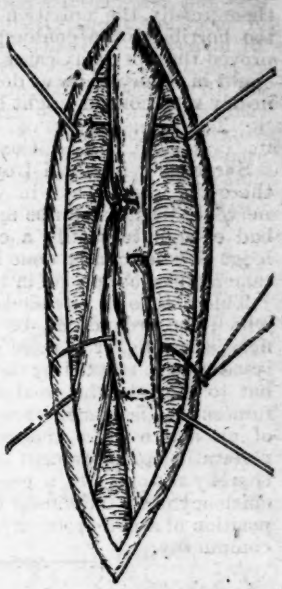

FIG. 17.—Lower divided portions of the tendons of the peroneus longus and tibialis anticus inserted into the tibia. The upper end of the tendon of the tibialis anticus sutured to the lower end below its insertion in the bone.

four inches above the tip of the external malleolus (Fig. 8).

The tendon is now divided through this upper incision, and the lower freed portion is then pulled out of its sheath through the lower opening while its normal attachment to the sole remains undisturbed (Figs. 8 and 9).

An incision 2 to 3 in. above the tip of the external malleolus is made just external to the anterior border of the tibia, and the divided lower portion of the peroneus longus tendon is passed up from the lower incision to this new one. In its new course the tendon should pass under the anterior annular ligament (Figs. 10 and 11), but if this cannot be done it may be passed in the deep fascial layer (Fig. 19).

FIG. 18.—Diagram to show the anatomy of the area concerned; the three parts of the annular ligament are shown, the tendon of the tibialis anticus is hooked inwards, the tendon of the peroneus longus has been passed under the annular ligament and brought into contact with the tibia.

The periosteum is now raised from the anterior aspect of the tibia and a deep groove is made in the bone; the tightly pulled tendon, whose outer surface has previously been roughened, is then laid in the groove and is retained in it by a small nail or it is fixed by strong catgut into fascia. The periosteum is then replaced over it (Figs. 16 and 17).

Another effective method of fixing the tendon is to bore a hole through the anterior border of the tibia and pull the tendon through (Figs. 13, 14, and 15). The free end can then be stitched to periosteum, on the inner side of the tibia, or in some cases it may be more convenient to turn the tendon over the crest of the tibia and stitch it to the tendon before it enters the tunnel. Through this same incision the tendon of the tibialis anticus (Fig. 12) is divided and the upper end of the lower portion inserted beneath the periosteum in front of the tibia, in a manner similar to that first described, by nailing, or through a hole bored in the substance of the bone after the second method.

When this has been done the cut end of the upper part of the tibialis anticus tendon is inserted into the lower part of the tendon distal to its insertion into the tibia (Fig. 17).

The peroneus brevis tendon may then be shortened and inserted into a gutter along the anterior surface of the external malleolus, by another short nail.

If the patient refuses operation he may wear a leather band above the ankle and one round the instep. These leather bands are connected by indiarubber bands sufficiently strong to keep the foot at right angles. The boot can be worn over this.

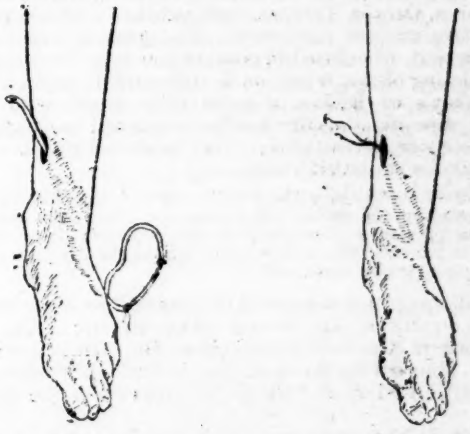

FIG. 19.—Alternative operation in which the tendon of the peroneus longus is pulled through the subcutaneous tissue without regard to the annular ligament. A, First stage. B, Tendon of peroneus longus drawn upwards and inwards.

Injury to Sciatic Trunk.

If the whole sciatic nerve has been divided high up in the thigh there is total loss of power below the knee and in certain muscles governing the knee-joint. In such cases the patient can walk quite well in a jointed caliper splint with a filling inside the boot to keep the foot at right angles. Another useful plan is to fit a jointed knee cage with a spring and a right-angled support for the ankle. This really means that we make the paralysed distal part of the leg into a species of artificial limb, and this, in actual practice, has proved much better than any artificial limb that I have ever met with.

The idea of rushing to amputation of a limb merely because the sciatic nerve is destroyed and therefore

theoretically the nutrition of the foot must go wrong, is too horrible to be contemplated. Actual experience has proved that, in many cases, the errors of nutrition which ought in theory to occur do not occur, or, at worst, are not nearly so serious as might be expected.

CONCLUSION.

Surgeons will glean from what has been written that there are many ways in which the disabilities following nerve destruction can be met, and that hardly any case is bad enough to justify a counsel of despair. Our knowledge of what can be done in poliomyelitis will invite us to take a cheerful outlook in traumatic paralyses.

This article is intended not merely to indicate ways in which the ground can be prepared for the operations of nerve suturing, or to point out the value of keeping a paralysed muscle relaxed by opposing the force of gravitation, but to indicate the great and ever-increasing field of usefulness that is opened up by utilizing tendon, whether that of an active or a hopelessly paralysed muscle, for the restoration of movement or the correction of deformity, thereby restoring to a greater or less extent the economic efficiency of an individual who will otherwise sink into the position of a non-productive and dependent member of the community.

THE IMPORTANCE OF METHOD IN THE ISOLATION OF PATHOGENIC ORGANISMS OF THE TYPHOID GROUP FROM FAECES.

A FURTHER NOTE ON THE VALUE OF TELLURIC ACID COMBINED WITH BRILLIANT GREEN.

BY

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THE employment of brilliant green in fluid medium as a means of isolating typhoid and paratyphoid bacilli from faeces, which was originally suggested by Browning, Gilmour and Mackie, and independently by Torrey, for paratyphoid organisms, has now found wide acceptance (Clarke and Stokes, Dreyer, Tidy, as well as other workers whose results are not yet published). The general experience has been that, when used in conjunction with the ordinary direct plating of the faeces on a differential medium like MacConkey's or Endo's, a substantial increase in the number of positive results has been obtained as compared with the latter method alone. As Clarke and Stokes note, however, this statistical result

> leaves out of the picture the relative ease of the two methods so far as finding the colonies is concerned. The balance from this point of view is strongly in favour of the brilliant green method, in which it was common to get a practically pure plate of the typhoid group organism.

Accordingly our statement is confirmed that when these specific organisms are found they usually occur in abundance in the subcultures from the brilliant green medium, thus saving much of the time which is taken up in testing a variety of "likely" colonies from the direct plates.

As regards the procedure which has been followed by other workers who have employed brilliant green, it is to be noted that for the most part they have cut down the series of tubes of peptone water containing varying amounts of the dye, which we originally recommended. Thus a single tube containing 0.4 to 0.5 c.cm. of brilliant green 1 in 10,000 in 10 c.cm. of peptone water has been generally employed as representing the optimum concentration. The adjuvant procedure in the form of a further series of tubes containing telluric acid along with brilliant green, in addition to green alone, which was suggested by Browning, Mackie, and Smith, does not appear to have been extensively tested by other investigators. It is, of course, recognized that exigencies of work set a limit to the time which can be devoted to such examinations; but as the paramount importance of leaving no carriers undetected is now generally recognized, it seems desirable that methods should be adopted which will expose the maximum number of cases. The results of others have shown that the use of a single tube of brilliant green medium will contribute a large proportion of the extra positives detectable by means of this reagent; but in view of the epidemiological significance of carriers it would be an unwise economy of time to rest content with the detection of those carriers which could be found by abbreviated methods and to neglect the further number of cases which could be discovered by suitable means, and which, if overlooked, are probably quite as likely as the rest to constitute foci of infection later on. Thus, provided that there is a definite prospect of adding to the number of positive results, a moderate increase in the amount of attention devoted to the examination of the faeces beyond the inoculation of one direct plate and one tube of brilliant green medium is highly advisable.

The question is, What extension of procedure is likely to yield the best return of further positives? On the basis of our own routine investigations of suspected typhoid-group infections in a large general hospital we would submit that of the means at present available, in addition to direct plating, the employment of a series of tubes of fluid medium containing varying amounts of brilliant green along with a series containing green and telluric acid will probably afford the largest yield of positive results.

As has already been emphasized in these pages (Browning and Thornton), we believe that the employment of a series of doses of the differential reagent in the medium is of the greatest importance. It is obviously a difficult task to arrange such conditions that scanty specific bacteria in a mixture with a large number of biologically similar organisms may undergo selective proliferation so as to enable the former to be isolated in pure culture. The method of making very large surface inoculations on a solid differential medium direct from the faeces, as was done some years ago by Harvey in his important work on the detection of carriers in the army in India,* involves the use of much agar and the search among large numbers of likely colonies, a serious matter where coliform bacilli, which do not produce typical appearances on the differential medium (for example, pale growth on MacConkey's agar), are present. Therefore the use of a simple fluid medium containing differential antiseptics probably yields the best return for the time spent.

In the case of *B. paratyphosus* B the disparity in behaviour between the specific organism and most of the accompanying coliform bacilli is such that brilliant green by itself, in the proportion of 0.5 c.cm. 1 in 10,000 per 10 c.cm. of peptone water, seems to constitute usually a highly suitable medium for isolation. But where one has to deal with smaller differences between the specific organism and the concomitants, as is especially the case with *B. typhosus*, a single concentration of green does not yield the best results (as Clarke and Stokes's figures indicate), and a finer adjustment of the medium becomes necessary. Hence appears the value of using a series of amounts of the differentiating reagent (brilliant green) in the culture of a single specimen of faeces, as the optimum concentration of the dye depends on factors which vary from case to case. Torrey, in employing brilliant green for the isolation of paratyphoid bacilli from faeces, also recognized the importance of the quantitative factor; thus he adopted a fixed concentration of green in glucose bouillon, but added varying amounts of faeces to a series of tubes; subcultures were then made after twenty-four hours' incubation at 37° C. He found that

> if the paratyphoid or *enteritidis* bacilli are fairly numerous in the faeces, pure or nearly pure cultures will develop in all of these tubes. If, however, they are present in very small numbers, the specific growth occurs rather more often in the lightly than in the heavily seeded tubes.

We also employed a relatively light inoculation and found that positive results might be obtained in subcultures from the fluid medium after forty-eight hours' incubation, although the subcultures at twenty-four hours had been negative. Clarke and Stokes, on the other hand, made much heavier inoculations, and found it advisable to subculture earlier (after nine hours).

Here, again, the optimum conditions cannot be determined beforehand, hence the advisability of employing a series of concentrations of the reagent so as to afford a range within which the optimum is likely to lie.

* Harvey used three 9-in. plates of Conradi's medium for each sample of faeces. Each plate required approximately 30 c.cm. of medium, and every likely colony was picked off and investigated.

Further, it has already been pointed out that typhoid bacilli may be isolated from faeces by means of a series of doses of brilliant green and telluric acid, where direct plating, as well as the use of varying amounts of brilliant green alone, both fail to detect their presence (Browning, Mackie, and Smith). The following instance, which recently came under our observation, furnishes a fresh illustration of this latter highly important point. We are indebted to Dr. Pasteur for permission to use the clinical notes of the case.

Woman, aged 34. History of sixteen days' illness; pains in the head and abdomen, with slight abdominal tenderness, vertigo, and profound weakness. The faeces throughout have been firm and well formed. "Rose spots" present; also slight splenic enlargement (maximum recorded temperature 103.4° F.). Previous to the onset of illness the patient had for five weeks nursed a case said to be suffering from typhoid fever. Widal reaction (by the macroscopic method, using Dreyer's emulsion) shows marked agglutination of *B. typhosus* up to 1 in 200 serum dilution after two hours at 55° C. Specimen of faeces (solid, obtained by enema)—one loopful emulsified in 5 c.cm. normal saline; then one large loopful of emulsion added to each tube of medium (1 per cent. peptone water, neutral to litmus; two series—(*a*) containing brilliant green, and (*b*) brilliant green *plus* telluric acid).

10 c.cm. Peptone Water containing		Resulting Growth, after Incubation for 24 hours at 37° C., plated on MacConkey's Medium.
Telluric Acid 1 per cent.	Brilliant Green 1 : 10,000.	
0 ...	0.1 c.cm.	Coliform bacilli.
	0.2 ,,	,, ,,
	0.35 ,,	,, ,,
	0.5 ,,	,, ,,
	0.7 ,,	Coliform bacilli which did not ferment inosite.
0.04 c.cm. in each tube	0.1 c.cm.	Coliform bacilli.
	0.2 ,,	,, ,,
	0.35 ,,	,, ,,
	0.5 ,,	,, ,,
	0.7 ,,	*B. typhosus* in pure culture.

Plate of MacConkey's medium inoculated directly with the faeces showed nothing resembling *B. typhosus* present in more than 100 colonies.

The amount of faeces used was less than that commonly employed by us. As a rule, in the case of very fluid faeces a large loop (up to ¼ in. diameter) is employed for inoculation; solid faeces are emulsified by rubbing up with several volumes of sterile water, and then one loopful is used to inoculate each tube.

The results obtained here show (1) that along with a negative result by direct culture on MacConkey's medium*—the number of typhoid bacilli present in the faeces constituting probably much less than 1 per cent. of the total viable organisms—(2) no amount of brilliant green up to high doses enabled *B. typhosus* to flourish so as to permit it to be recovered in subcultures, but (3) the mixture of telluric acid and brilliant green yielded in this case a pure growth of *B. typhosus* in the tube containing the highest amount of green, whereas no typhoid bacilli were found in subcultures from any other tubes of the series. We shall not attempt to analyse the multiplicity of factors which may operate in such cases; but the practical issues are clear—namely, that (*a*) for the successful isolation of *B. typhosus* from faeces varying amounts of the differential reagents may be necessary, and (*b*) the use of telluric acid along with brilliant green may be essential in order to secure a positive result.

Summary.

1. In the examination of faeces for typhoid and paratyphoid bacilli, the value of a simple fluid medium containing brilliant green, in addition to direct plating, as a means of increasing the number of positive results, has been confirmed by a number of workers.

2. A single fixed concentration of brilliant green (0.5 c.cm. of green 1 to 10,000 per 10 c.cm. of peptone water) seems to leave little to be desired as a medium for the isolation of *B. paratyphosus* B; but this fixed medium does not yield so good results with *B. typhosus*, for which a series of doses of green are required in order to secure the optimum concentration, which depends on a number of variables.

3. In the examination of faeces for *B. typhosus* a series of varying amounts of brilliant green along with telluric acid may be essential in order to isolate this organism in cases where both direct plating and brilliant green alone fail.

4. The importance of detecting carriers for the prophylaxis of epidemics should justify the time spent in this extension of the "one-tube" method. Even in its unabbreviated form the procedure compares favourably, as regards consumption both of time and materials, with the old method of spreading a number of large plates directly with the faeces. The fact that the successful subcultures from the fluid medium frequently yield practically pure growths of the pathogenic organism is an important advantage of the method.

* MacConkey's agar has been employed, since we have not found that, as prepared here, it compared disadvantageously with Endo's as a medium for the growth of *B. typhosus*.

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EXAMINATION OF FIFTY DYSENTERY CONVALESCENTS FOR CARRIERS.

BY

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THE fifty men examined had all suffered from dysentery contracted on service, and with one exception gave a history of passing blood and slime for periods varying from three days to nine weeks. In four cases a history was also obtained of an illness resembling enteric fever. The convalescents were not selected, but were the first fifty examinations completed in the course of search for carriers in a convalescent camp.

The date of onset of the original illness ranged from May, 1915, to January, 1916, but all except two cases first showed symptoms of dysentery before the end of November, 1915. The examination began on February 16th, and ended on March 24th, 1916.

In every case, therefore, except two the illness began more than two months before the investigation here recorded. The examination of faeces was made in each case on three occasions, an interval of two or three, or occasionally more, days elapsing between the separate observations. The specimens of faeces reached the laboratory within half an hour of being passed. The examination consisted of: (1) Microscopic search for protozoa; (2) plating on MacConkey's neutral red bile-salt lactose agar, and subsequent examination of colourless colonies by means of carbohydrate media and agglutinating serums; (3) a specimen of blood was taken from each man on one occasion and its agglutinating power tested against stock emulsions.

Table showing the Results Obtained by Microscopic Examination and Culture.

Entamoeba histolytica was found in ...	9 men
E. coli was found in	25 ,,
Lamblia intestinalis was found in ...	15 ,,
B. dysenteriae (Shiga) was found in ...	2 ,,
B. dysenteriae (Y) was found in	0 ,,
B. typhosus, *B. paratyphosus* A or B was found in...	0 ,,
Negative results (neither protozoa nor bacteria)	14 ,,

Trichomonas intestinalis was noted in two cases, but was not looked for, especially on account of the need for rapid work. In all the cases in which *Entamoeba histolytica* was recognized *tetragena* cysts were observed, and large or small vegetative forms were also observed in some of these.

Further Analysis of the Results of Microscopic Examination.

Entamoeba was found alone in	6 men
Entamoeba coli was found alone in ...	12 ,,
Lamblia intestinalis was found alone in ...	4 ,,
E. histolytica and *Lamblia* were found in ...	1 man
E. histolytica and *E. coli* were found in ...	2 men
E. histolytica and *Trichomonas* were found in	1 man
Negative	14 men.
Total	50

In both cases from which *B. dysenteriae* (Shiga) was isolated *Entamoeba coli* was also found, and in one of them *Lamblia* in addition. From the above statement it is seen that 11 (22 per cent.) men out of the 50 convalescents were found to be carriers of pathogenic micro-organisms (9 *E. histolytica*, 2 *B. dysenteriae*, Shiga). The specimens from the same man did not always yield the same result on each of the three examinations.

E. hystolytica was found on 3 occasions in ... 2 men
" " " 2 occasions in ... 6 "
" " " 1 occasion in ... 1 man
B. dysenteriae (Shiga) was found on 2 occasions in ... ... 1 "
B. dysenteriae (Shiga) was found on 1 occasion in ... ... 1 "

A single examination in each case, therefore, would not have given so many positive results, and it is reasonable to suppose that more numerous examinations would have revealed additional carriers.

Results of Agglutination Tests with the Serum of Convalescents.

Agglutination tests were made with the serum of each man against *B. typhosus*, *B. paratyphosus* A and B, *B. dysenteriae* (Shiga and Y), and also against *M. melitensis*. Definite agglutination with a dilution of 1 in 100 was regarded as a positive result in the case of *B. typhosus* and *B. paratyphosus* A and B and *B. dysenteriae* (Y). A dilution of 1 in 50 was considered sufficient in the case of *B. dysenteriae* (Shiga), and 1 in 400 was the only dilution used with the *M. melitensis* emulsion.

The method used was macroscopic, and the reading was made after four hours at 37° C. and about eighteen hours at room temperature. All the men had been inoculated with *B. typhosus* vaccine, and in twenty-seven a positive agglutination reaction was obtained with *B. typhosus*. Seven had also received a mixed *B. paratyphosus* A and B vaccine. Agglutination of these bacilli was explicable by the inoculation in these cases, and the results have therefore been discarded.

In all the men negative agglutination results were obtained against *B. dysenteriae* (Y) and *M. melitensis*. A positive result was obtained with *B. dysenteriae* (Shiga) in twenty-one cases, including the two men from whom this bacillus was isolated. A positive result with *B. paratyphosus* B was obtained in four cases, but in no instance was a positive reaction obtained with *B. paratyphosus* A (leaving out of account the men who had received paratyphoid vaccine).

Multiple Infections.

Indications of multiple infection were given in six convalescents when the agglutination results were taken into consideration in addition to the microscopic and cultural results.

The serum of one man gave a positive reaction with *B. dysenteriae* (Shiga) and with *B. paratyphosus* B.
The serum of one carrier of *E. histolytica* gave a positive reaction with *B. dysenteriae* (Shiga) and with *B. paratyphosus* B.
The serum of three other carriers of *E. histolytica* gave positive reactions with *B. dysenteriae* (Shiga).
The serum of one other carrier of *E. histolytica* gave a positive reaction with *B. paratyphosus* B.

An attempt to diagnose the original illness or illnesses from which the convalescents had suffered by agglutination tests rests on much less secure ground than diagnoses based on microscopic cultural evidence. However, an opinion may be formed of the numerical relation of the different kinds of infection. From all the evidence obtained it appeared that:

4 men had suffered from infection with *E. histolytica* alone.
1 man had suffered from infection with *E. histolytica*, *B. dysenteriae* (Shiga), and *B. paratyphosus* B.
3 men had suffered from infection with *E. histolytica* and *B. dysenteriae* (Shiga).
1 man had suffered from infection with *B. dysenteriae* (Shiga) and *B. paratyphosus* B.
16 men (including 2 cases in which *B. dysenteriae* was isolated) had suffered from infection with *B. dysenteriae* (Shiga) alone.

For the remaining men no direct evidence was obtained as to the nature of the infection, but since they gave negative agglutination results there is, perhaps, a presumption that the majority had been infected with *E. histolytica*.

Main Conclusion.

Among 50 dysentery convalescents examined, three to six months after the onset of their illness, 9 were still excreting *E. histolytica*, 2 were still excreting *B. dysenteriae* (Shiga). These 11 men were therefore potential sources for the outbreak of fresh epidemics.

AN EASY AND RAPID METHOD OF DOING WIDAL'S REACTION FOR TYPHOID.

BY

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THE following is a rapid and simple method of determining, or at least of strongly suspecting, the presence or absence of typhoid in a non-inoculated person. It possesses the advantage of requiring very little blood, for with a few films such as are used for ordinary microscopic examination, we can (especially if typhoid is suggested by an absence of leucocytosis) perform the agglutinating test with one or two of these films.

1. With a colour grease glass writing pencil, or a piece of wax, draw a line across the middle of two slides at right angles to their long axes.
2. Spread a film of the blood to be examined on one half of each slide, and, when dry, spread a film of one's own blood, or that of a person who has not had typhoid or who has not been protectively inoculated against it, as a control, on the other half of each slide. The film may be as thin as that ordinarily used for stained films, or a little thicker. Dry.
3. By means of a platinum loop or pipette place a small drop of an emulsion of killed typhoid bacilli on the centre of each half of both slides, and with the platinum loop, or with a needle, rub the drop well over the film of blood, taking care not to pass from one half of the film to the other without sterilizing the needle.
4. On one slide carefully place a cover-glass on each half, taking care that the two cover-glasses are well separated in the middle by the mark of the grease pencil.
5. Place the other slide on a piece of wet blotting paper, and cover with a Petri dish to prevent evaporation for a period of fifteen to twenty minutes. At the end of that time dry carefully over the flame, and then stain.

Examine both halves of the first slide under a moderately low power. At the end of fifteen minutes (often much sooner) distinct clumps of agglutinated bacilli will be seen, provided the case be one of typhoid or the blood of one who has been prophylactively inoculated with a typhoid vaccine, whilst on the other half, the control, the bacilli show no signs of clumping. The film, stained with Leishman or Giemsa's stain, will show on one half patches of agglutinated bacilli, whilst on the control half the typhoid bacilli are more or less uniformly spread over the film. The red cells are practically invisible, but the leucocytes are clearly defined, and it is quite easy, provided the film has been thin, to determine the presence or absence of leucocytosis, and to make, if necessary, a differential count of the various forms of white cells present.

The emulsion I have been using is that made from a young agar culture of typhoid bacilli in saline solution, killed by the addition of 1 per cent. formalin. Emulsions of dead typhoid bacilli can be obtained from the Lister Institute.

I find the standard agglutinable cultures of Professor Dreyer as sent out from Oxford for the sedimentation method answer very well, especially if the emulsion be taken from the lower part of the bottle. Prophylactic typhoid vaccines do not give as clear results as emulsions from agar cultures, and the bacilli do not stain readily. Should the above give a positive result, a quantitative test may subsequently be made of the serum of the blood by Professor Dreyer's sedimentation method. Provided with an emulsion of killed paratyphoid A and paratyphoid B bacilli, the blood film may be tested against infection of these organisms in precisely the same way.

I am greatly indebted to Captain Alfred Friel, M.D., F.R.C.S.I., S.A.M.C., Bacteriologist to the South African General Hospital, for his kindness in confirming my results.

THE TREATMENT OF WOUND INFECTIONS.*

BY

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ATTENTION is being drawn at the present time to the study of the physiological aspect of the treatment of wound infections, and, as a result, new methods, to replace old, have been suggested. In particular, Sir Almroth Wright advocates very strongly giving up treatment by antiseptics for treatment by salt solutions. He does this chiefly on the ground of laboratory experiments, laying it down in respect to treatment that "where the results are neither brilliantly successful nor the reverse . . . we shall be well advised if we guide ourselves, when this is unambiguous, by the verdict of laboratory experiments." Although I have been working with him, I am unable to agree that his experiments conform to this standard, and would for that reason put forward points which appear worthy of further consideration. These relate to: (1) Measures which affect the flow of lymph; (2) measures which affect the flow of pus; (3) antiseptics.

1. *Measures which Affect the Flow of Lymph.*

In his first lecture on the treatment of wounds Sir Almroth Wright maintained "that we have at disposition an agency for powerfully increasing the outflow of lymph," and asserted that a 5 per cent. solution of common salt "brings into play osmotic forces, and 'draws' the lymph out of the walls of a wound by a *vis a fronte*." In his second lecture, as a result of the criticism that osmotic forces would determine the flow of water and not of lymph, he appeared to give up the notion of osmosis, but otherwise maintained his position. At this lecture he showed four experiments to "bring clearly before the eye the drawing power of salt." For the first, he took a capillary tube open at both ends with an additional opening at its middle. This tube he filled with strong salt solution, and, holding it horizontally, dipped it for a few seconds into a watery solution of methylene blue. On taking the tube out he found that more methylene blue had passed in through the three openings than had happened in the case of a control tube which contained water instead of salt solution. This result we should expect, since salt solution is heavier than water. The salt solution would, for this reason, tend to fall out of the tube, and consequently the methylene blue solution would run in to take its place. The same explanation holds in the case of the second experiment, which was as follows: A piece of glass tubing, plugged with moist cotton-wool, was placed vertically in a vessel containing a watery solution of methylene blue. It was found that the methylene blue travelled up the tube, but travelled higher when salt was placed on the top of the plug. In the third experiment Sir Almroth Wright took a "stab" of watery agar, and on the top placed a cube of salt. In some twelve hours an interchange had taken place, salt passing into the agar and water to the salt. This he gave as a demonstration of what he expected—namely, "a process of barter in which salt and water should be exchanged, not in volumetric equivalents, but in the ratio of very many volumes of fluid for one of the solid." As a matter of fact, the volume of fluid in such a case is not greater than the volume of solid, and the experiment is merely a demonstration of the diffusibility of salt in agar. The fourth experiment was similar, but in this case the stab consisted of blood agar. Here the presence of the albuminous substances in the fluid which collected above the agar showed only that such substances diffuse in agar in the same way as salt, and not that salt draws lymph. It is therefore clear that these experiments do not support the view that hypertonic solution will draw lymph out of a wound.

Again, Sir Almroth Wright, in his discourse, asserted that it was "confusion of thought" which led to the belief "that it is the interposition of the sieve which confers upon salt the power of drawing water to itself." Such an assertion is really a denial of Newton's third law, which lays it down that action and reaction are equal and opposite. For it follows from this law that salt would be drawn to water by forces equal to any which would draw water to salt. Consequently, unless a sieve supported and held back salt, while not at the same time preventing the passage of water, there could not be such a process of barter as Sir Almroth Wright suggests. It is plain, then, that the only sense in which salt can be said to draw "water" to itself is that recognized when such a process as osmosis takes place. But salt cannot be said to draw lymph to itself even by osmosis, because albuminous substances cannot pass through membranes impermeable to salt. On the contrary, it might be said that since animal membranes are usually permeable to crystalloids and not to colloids an albuminous substance may by osmosis "draw" salt to itself.

Having seen that salt does not draw lymph by a *vis a fronte*, we may examine how the outflow can be influenced. We shall only deal with those ways which are clearly physical. For these to be operative, we must presume that the lymph spaces and channels, potential and otherwise, are open to the surface, and that a fluid pressure greater than atmospheric tends to drive lymph out through them. The flow will then be at a rate depending on the pressure in the tissues and on the number and size of the channels. As regards the pressure, it is plain that this will vary with the hyperaemia, and so we may expect that any measure which favours hyperaemia will also act as a lymphagogue. Again, as regards the channels, we see that they may be obstructed (1) by dried lymph on the surface blocking the outlets; (2) by the cellular walls coming together and obliterating such channels. The application of any moist dressing will usually remedy the first, and is as a rule sufficient. In this connexion it must not be thought that moist coagulated lymph will necessarily prevent drainage. After all, it is merely a meshwork of fibrin in which the leucocytes can move and function. It is hardly comparable with a membrane, and is pervious unless it becomes blocked by pus cells. The obstruction due to this and to the obliteration of the channels can be relieved if we can abstract fluid from the cells. This can be done by the application of hypertonic solutions, which would cause an osmotic diffusion of water out of the cells. The cells would then shrink and the obliterated channels open up, just as the ground is fissured in dry weather. The result would be that the lymph would have free passage to the surface and the lymph-bound condition be relieved. This action of hypertonic solutions can readily be demonstrated by trying to filter fluids through agar containing blood corpuscles. Owing to the osmotic crenation and shrinkage of the corpuscles which they cause, hypertonic solutions go through comparatively readily, while the isotonic are held back.

But it is hardly to be expected that the direct osmotic effect of salt in a wound will be more than a very superficial one, for, once a flow is established, the current of lymph outwards will tend to counteract the diffusion of salt inwards. Thus, as soon as the surface becomes pervious, the presence of hypertonic solutions cannot be expected still further to increase the flow. Again, it does not necessarily happen that the osmotic effect of hypertonic solutions will always produce conditions favourable to a flow. From a clinical point of view, this is made clear by Colonel H. M. W. Gray,[1] who, at Rouen, in a lecture strongly advocating the use of hypertonic salt solution as a lymphagogue, gave away much of his case by pointing out that salt tabloid packs, so far from producing a flow, frequently became dry after twenty-four hours.

It may be observed here that the effect of hypotonic fluids, such as tap water, hydrogen peroxide, and iodine solutions, have the opposite effect to hypertonic fluids, and would cause the surface cells to swell. This swelling may be expected to bring about a diminished flow of lymph. It is therefore desirable that the excipient used for antiseptics should be isotonic with the blood fluids. For this reason we ought to dilute antiseptics with physiological saline, unless they are incompatible, and not, as is usually done, with water.

2. *Measures which Affect the Flow of Pus.*

Here, again, Sir Almroth Wright claims that he has a specific, this time in physiological saline, asserting that "the white corpuscles are carried forward by a chemiotactic movement in the direction of the free surface upon

* Read at the Royal Society of Medicine, Pathological Section, on May 2nd, 1916 (see p. 689).

which the physiological solution has been imposed." I would venture, however, to examine in fuller detail the experiments on which he bases this claim, and whether it is warranted by them.

Taking flat capillary tubes containing unclotted blood, he centrifugalized this before it had time to clot. When clotting had taken place there was then in the tube a clot consisting of a red corpuscular portion (*a*), a white plasma portion (*c*), and between these, joining them, a narrow portion containing white corpuscles (*b*). He then superimposed upon these clots a "chemiotactic agent," such as saline, and incubated them. The clots were afterwards removed from the tubes, mounted on slides, and stained. It was observed in many cases that, if the temperature was in the neighbourhood of body temperature, the leucocytes had wandered or emigrated into the white clot. It was on experiments of this nature that Sir Almroth Wright based his statements regarding chemiotaxis.

We may get help in understanding the behaviour of the leucocytes in these experiments if we consider the ways in which the clot tends to contract, and, for this purpose, it is what happens in the neighbourhood of the leucocytic layer of the clot which is of importance as once the leucocytes have moved well out into the white clot they appear to remain there. Sometimes, as Sir Watson Cheyne points out,[2] there is no contraction (Fig. 1, A). At other times contraction takes place at the junction of the red and white clots (Fig. 1, B, C), and a neck containing most of the leucocytes is formed. This neck may lie wholly free in serum (Fig. 1, B), or partially in contact with the walls of the tube (Fig. 1, C). When it lies wholly free in serum, it becomes highly probable that the wandering movements of the leucocytes will result in their finding a way laterally out of the clot into the serum more readily than along the axis, and thus we would expect to find, in such a case, no emigration. On the other hand, when the neck of the clot lies partly in contact with the tube, the leucocytes in that situation would not be able to pass out of the clot, and so they would be more likely to travel along the axis and show emigration. These expectations accord with what is actually seen to take place. In my own experiments I found in some cases practically no polynuclear cells in the white clot, and only a few mononuclear near the neck. This occurred both with and without the addition of the chemiotactic agent. In other cases the leucocytes travelled along the clot, especially the more active polynuclear. This also occurred both with and without the addition of the chemiotactic agent. Some of the specimens, showing ultimately no emigration, where no chemiotactic agent had been applied, I examined from time to time on a warm stage, where the movements of the leucocytes could be watched. At first near the neck, they could be seen moving actively in all directions, but later they disappeared out of the clot. When mounting these specimens, I collected the serum which had exuded from the clot, and found a very large number of leucocytes in the exudate. Subsequent examination of the tubes, which, after the clot had been removed, were immediately filled with fresh serum, also revealed large numbers of leucocytes adhering to the walls and showing active movements. Hence the polynuclear leucocytes do, without the application of a chemiotactic agent, wander into the clot and then out into the serum. It is clear, therefore, that Sir Almroth Wright can hardly be justified in supposing that emigration due to wandering or "eleutherotropic" movement is predominantly mononuclear and that polynuclear emigration is chemiotactic. This variable loss of leucocytes from the clot to the serum, clearly independent of any possible chemiotactic influence, shows that it is as futile to aim at measuring quantitatively the emigration movements and chemiotactic effects by estimating the number of leucocytes which remain in the white clot at different distances from the red as it would be to estimate the total number of a company after an unknown proportion had retired. But even when free emigration takes place in the presence of physiological saline it cannot be said to be due to chemiotaxis, for the distance traversed by the leucocytes is little or no greater than when no fluid but serum is present, whereas if such emigration were due to chemiotaxis—that is, "a directed movement along a particular axis undertaken under the direction of a chemical stimulus"—one would expect great differences. The small differences that are occasionally seen may be explained by a slight effect which physiological saline may possibly have in increasing the non-directed wandering movements of the leucocytes. This effect is apparently shown in some specimens obtained by mixing saline with blood before it clots, circumstances in which there could be no chemiotaxis. But even admitting this stimulation, it is doubtful whether it is of any value. For the leucocytes would not start their wanderings in larger numbers, but only travel faster through the infected tissues, and act there for a shorter time. Again, physiological saline would not increase the all-important function of phagocytosis. I submit, therefore, that laboratory results, as yet, give no grounds for asserting that we have in physiological saline an agent which will advantageously affect the activities of the leucocytes and the flow of pus into a wound.

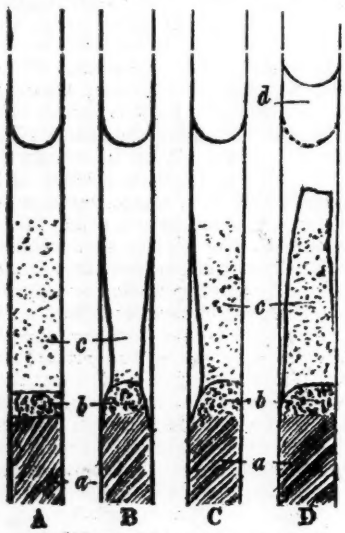

FIG. 1.—Emigration tubes showing different types of contraction. (*a*) Red clot, (*b*) leucocytic layer, (*c*) white clot, (*d*) superimposed fluid. A, No contraction; free emigration shown. B, Contraction with the formation of a neck at the leucocytic portion of the clot, which lies free in serum; emigration is not shown in this. C, Contraction similar to B, but the neck is partly in contact with the tube; emigration shown. D, Chemiotactic agent superimposed; retraction of clot along its axis; leucocytic layer in contact with the tube; emigration shown; this clot is not so likely to contract in mounting, so that the distance which leucocytes traverse would appear greater than in those from A and C.

On the other hand, there is no difficulty in agreeing that strong antiseptics, bacterial suspensions, and, above all, hypertonic solutions do act in suppressing leucocytic movements. This is clearly shown by experiments made by mixing the blood and the test fluid in the emigration tubes before clotting takes place. Such experiments show that some antiseptics—such as carbolic acid—powerfully suppress emigration, whilst others—such as mercuric salts and the neutral hypochlorous solutions—have comparatively little action. But of more practical significance in determining the possible injurious effects produced by the various applications on the physiological processes is the observation made on the wound itself as to whether there is a good flow of laudable pus. If there is, we may be sure that the application is not doing much harm to the tissues, and that the physiological processes remain active. In this connexion it may be noted that Sir Almroth Wright points out "that the practitioner of to-day has been educated up to expect to find, within a few hours after washing out an infected wound with antiseptics, as much pus as when he last came to dress it"; and that hypertonic salt solution will, as long as its concentration is maintained, arrest all suppurative processes and "give us a wound as clean and as free from pus as meat." The inevitable conclusion from this is that in practice, treatment by hypertonic saline, by interfering with the activities of the leucocytes, renders ineffective the only defence there is against the streptococcus and staphylococcus, whilst, with the application of an antiseptic or of physiological saline, this defence comes again into action.

But some do not view with satisfaction a good flow of pus from a badly infected wound, and it is not uncommon to hear the contemptuous expression "pus poultice." Certainly if the pus is stale, and has become "corrupted," it is noxious, but if fresh, it is efficiently doing its work of combating the organisms. Our aim must therefore be to remove the pus before it becomes corrupted, and if possible to destroy the organisms which corrupt it. The methods of removing pus are, of course, by constant irrigation and occasional flushing, and in deciding between these, it must be remembered that the use of irrigating fluids, even of physiological saline, if delivered below body temperature, will do harm by retarding the activities of the leucocytes. The possibility of destroying the organisms brings us to the consideration of antiseptics.

3. *Antiseptics.*

The attempt to destroy organisms in wounds is made in two ways—(1) by washing out with lotions, (2) by the application of dressings. In connexion with the washing out of a wound, it will be recognized that, although, as has been observed, the greater part of the wash will be thrown down the sink, a residue will remain in the recesses and pockets; and also that even on the most exposed surfaces some lotion will remain, wetting the films of pus adhering to those surfaces. These will continue to be a source of infection unless they can be sterilized. We have thus to consider the effect of antiseptics on them. In the case of the residue, there is a comparatively large quantity of antiseptic mixed with a small amount of pus, and for the purpose of estimating the effect of the antiseptics, I took it that the conditions of the following experiment were analogous.

Mixtures of one part of pus and nine of antiseptic were made, and, after ten minutes, 10 c.mm. planted in tubes of liquid agar at 42° C. After they were thoroughly shaken, the tubes were sloped and the agar allowed to set. They were then incubated at 37° C., and after a period were examined for colonies. It was found that when the antiseptic was strong the number of colonies could be counted readily. When it was weak, and in the case of the controls, the agar became opaque with innumerable minute colonies. The results were comparative, and did not lend themselves to strict quantitative expression. This was to be expected, for the specimens differed considerably. All were heavily but not equally infected. Some were thick and mucoid, and would not mix well with the antiseptics. However, in the case of every sample of pus, several antiseptics and a control were tested.

I give a few tables to illustrate the kind of result obtained. Using this method, I came to the following conclusions: For the purpose of washing out a wound, neutral hypochlorous solutions are by far the most potent of the antiseptics usually employed, and are effective if diluted to 1 in 800 available chlorine, or 1 in 4 of the strengths usually dispensed. Mercury antiseptics 1 in 1,000, and carbolic acid 1 in 80, never sterilize completely, but kill a very large number of microbes, and delay the appearance of the growth of those which remain. Hydrogen peroxide by itself has very little bactericidal power, but when added to other antiseptics with which it is not incompatible, it increases their bactericidal power on pus organisms, presumably by its mechanical effect. Most of the other organisms in pus are killed more surely than streptococci and staphylococci, an action which is distinctly more marked in the case of mercury and carbolic acid than in the case of iodine and hypochlorous solutions.

TABLE I.—*Showing the Effects of Antiseptics upon the Growth of Bacteria in Pus.*

Experiment I.

Iodine:	1 : 400	1 : 800	1 : 1600	1 : 3200	1 : 6400
16 hours	+	++	+++	+++	++++ gas
Biniodide of mercury:					
16 hours	+	++	++	+++	
40 hours	++	+++	+++	+++	
Carbolic acid:	1 : 40	1 : 80	1 : 160	1 : 320	
16 hours	+	++	+++		
40 hours	++	+++	+++		
Antiseptic diluted with hydrogen peroxide (5 vol.).					
Biniodide of mercury:	1 : 400	1 : 800	1 : 1600	1 : 3200	1 : 6400
20 hours	−	−	+	+++	+++
40 hours	−	−	++	+++	+++
Carbolic acid:	1 : 40	1 : 80	1 : 160	1 : 320	
20 hours	−	+	++	+++	
40 hours	−	++	+++	++++	

Experiment II.

Hypochlorous solutions	1 : 1	1 : 2	1 : 4	1 : 8
Available chlorine ...	1 : 200	1 : 400	1 : 800	1 : 1600
Dakin's solution:				
18 hours	−	−	−	+
3 days	−	−	−	+
Eusol:				
18 hours	−	−	−	+
3 days	−	−	−	++
Carbolic acid:	1 : 80	1 : 160	Control	
	++	+++	++++	

In the case of the film of pus which the mechanical disturbance of washing does not remove, we again have a large quantity of antiseptic acting for a comparatively short time. I considered here that the effect of the antiseptic could be judged by the following experiment: 20 c.mm. of pus were smeared on the surface of agar slopes and allowed to dry. The tubes were then filled with antiseptic lotion so that the films were completely covered. After an interval the antiseptic was poured away and the tubes incubated upside down, so that any excess drained away. The following table (II) illustrates the results:

TABLE II.—*Showing the Effects of Antiseptics upon the Growth of Bacteria in dried Pus.*

Experiment I.

Antiseptic.	Strength.	Time.	
Carbolic acid ...	1 : 80	9 min.	Growth as in control.
Eusol (1 : 200 available chlorine)	1 : 4	1½ min.	All but a few small areas sterilized.
,, ,, ...	1 : 4	3 min.	All but a few small areas sterilized.
,, ,, ...	1 : 4	5 min.	All but a few small areas sterilized.
,, ,, ...	1 : 4	10 min.	All but one small area sterilized.
,, ,, ...	1 : 8	2 min.	Two small sterile areas.
,, ,, ...	1 : 8	5 min.	A few sterile areas.

Experiment II.

Carbolic acid ...	1 : 80	11 min.	Many discrete colonies all over film.
,, ,, ...	1 : 80	40 min.	Sterile.
Iodine	1 : 1000	4 min.	Sterile.
Biniodide of mercury	1 : 1000	4 min.	Sterile.
Hydrogen peroxide	2.5 vol.	10 min.	Sterile.
Dakin's solution (1 : 200 available chlorine)	Undil.	1½ min.	All but a small area sterilized.
,, ,, ...	"	10 min.	Sterile.
,, ,, ...	1 : 2	5 min.	Two colonies.
,, ,, ...	1 : 2	10 min.	Two colonies.
,, ,, ...	1 : 4	5 min.	All but a few small areas sterile.
,, ,, ...	1 : 4	10 min.	All but one small area sterile.
,, ,, ...	1 : 8	10 min.	Good growth; part of film sterile.
Control			Massive growth.

The results are very similar to those of the first experiment. One point was clearly shown, that the thickness of film makes much difference to the efficacy of the antiseptic. It was clear also that some antiseptics were much more rapid in their action than others, notably the hypochlorous solutions. This suggests that these are the most suitable for the purpose of washing out a wound, especially as they have practically no effect on the activity of the leucocytes.

In the case of the dressings, the antiseptic is gradually diluted with pus, becoming at the same time less efficient. Here, therefore, the pus tends to be in excess. To test the effect of antiseptics in these circumstances, I took either a specimen of pus containing very few organisms, one or two per field of a film, or a very thick suspension of blood corpuscles in serum containing a few organisms, and added a proportion of antiseptic. A film was prepared from the mixture, which was then incubated. After a time another film was prepared and compared with the first. If no difference in the number of organisms before and after could be detected, I concluded that the growth was prevented by the antiseptic. If there was a difference, it is clear that the organisms grew in spite of the presence of the antiseptic. A mixture of pus and saline served as control. In the table (III) which I have set out, the strength of the antiseptics given is the ultimate strength in the mixtures. Thus a strength of biniodide of mercury 1 in 1,000 would be present in a mixture of four parts of pus and one part of 1 in 200 of the antiseptic. In these experiments I found it made very much difference whether phagocytosis had taken place or not, there being an advantage in favour of the antiseptic when

TABLE III.—*Showing the Effects of Antiseptics upon the Growth of Bacteria when the Antiseptic is diluted with Pus.*

Experiment I (4 parts of pus, 1 part of antiseptic).

Carbolic acid	1 : 240 −	...	1 : 480 +
Hydrogen peroxide (10 vol.)		...	1 : 5 +
Iodine	1 : 1000 −	...	1 : 2000 +
Biniodide of mercury		...	1 : 1000 +

Experiment II.

Iodine:			
3 parts antiseptic, 1 part pus	1 : 1600 −	...	1 : 3200 +
1 part " 1 " "	1 : 1600 −		
1 " " 3 parts pus		...	1 : 1600 +
1 " " 4 " "		...	1 : 1000 +
Biniodide of mercury:			
3 parts antiseptic, 1 part pus	1 · 800 −	...	1 : 1600 +
1 part " 1 " "	1 : 900 −	...	1 : 1400 +
1 " " 3 parts pus	1 : 800 −	...	1 : 1600 +
1 " " 4 " "		...	1 : 1000 +

Experiment III (4 parts blood corpuscles with staphylococcus-infected leucocytes, 1 part antiseptic).

Carbolic acid	1 : 200* −	...	1 : 300 +
Chloramine	1 : 75* −	...	1 : 100 +

Experiment IV (1 part blood corpuscles, 1 part antiseptic).

Hypochlorous solutions (1 : 200 available chlorine):					
Dakin's solution	1 : 2† (?)	...	1 : 4 +	...	1 : 8 +
Eusol	1 : 2 −	...	1 : 4 −	...	1 : 8 +
Carbolic acid	1 : 160* −	...	1 : 320 +		

* Subcultures on agar gave no growth.
† Subcultures on agar gave a little growth.

it had not—that is, organisms grew better (1) in pus from an infected wound than in sterile pus to which a suspension of microbes was added; (2) in the infected blood when it had been incubated so as to allow phagocytosis to take place. This would lead us to expect that antiseptic dressings would be especially useful (1) in the earlier stages of an infection, before there is much pus; (2) to prevent the growth of organisms which might obtain access to a wound during the dressing. The following are the conclusions which I consider these experments justify: (1) The ultimate strength of the antiseptic being the same, the greater the proportion of pus the less the inhibition of growth. (2) Where pus is present in the proportion of 4 parts to 1 of antiseptic, organisms may grow freely when the following are the antiseptics used: Mercuric salts 1 in 200, carbolic acid 1 in 60, iodine 1 in 200, boracic acid 1 in 20, chloramine 1 in 20, hypochlorous solution 1 in 200 available chlorine. Organisms also grew when salt solution 20 per cent. was used. (3) Since organisms grow in pus in which antiseptics are present in the strengths indicated above, it is utterly unreasonable to expect any of them to diffuse into the tissues to such an extent as will give a strength sufficient to inhibit the growth of microbes, still less to kill them. (4) The pyogenic organisms are, as regard their growth in pus, among the least affected by the ordinary antiseptics.

The results obtained with hypochlorous solutions are of particular interest at present, inasmuch as eusol is being advocated for intravenous injection in cases of septicæmia. If they have any beneficial effect in the blood, it is clear the explanation cannot be found in direct bactericidal action.

When these experiments are reviewed as a whole, it becomes plain that in appraising the value of an antiseptic the purpose for which it is used must be taken into account. For instance, for washing out a wound, when the antiseptic would be in great excess, hypochlorous solutions are very potent, and carbolic acid comparatively weak. On the other hand, for an application in a dressing, when the pus would tend to be in excess, hypochlorous solutions are practically useless, whilst carbolic acid, although it has the disadvantage of interfering with the activity of the leucocytes, is fairly efficient.

Again, it becomes clear that, upon the evidence the experiments supply, antiseptics cannot do as much as is claimed for them. They certainly cannot sterilize the tissues subjacent to the surface of a wound, and, indeed, cannot be depended upon to sterilize an accessible surface, although they kill many of the organisms on it. Their use, therefore, depends on whether there is any advantage in this. It would seem that there is, for it can hardly be possible that the depth and intensity of the tissue infection are independent of the proportion and virulence of the organisms in the surface pus. If, therefore, these can be reduced, even temporarily, without at the same time unduly interfering with physiological processes, it is an important gain. This, which is in fact the most important object in dressing wounds, can be done by means of antiseptics, and herein lies their rôle in antiseptic treatment. If we expect more from the antiseptics at present available, we shall be disappointed.

In conclusion, I would express my grateful acknowledgements to those with whom I have been associated under the auspices of the Army Medical Service, and of the Medical Research Committee; but in particular to my former chief, Colonel Sir Almroth Wright, although I have come to conclusions divergent from many of those at which he has arrived.

REFERENCES.
[1] BRITISH MEDICAL JOURNAL, January 1st, 1916. [2] *British Journal of Surgery*, January, 1916.

Memoranda:

MEDICAL, SURGICAL, OBSTETRICAL.

SEVERE CEREBRAL INJURY, ASSOCIATED WITH LAUGHTER.

ON two occasions last summer I saw what I considered an unusual feature connected with the condition of two patients who were brought into an advanced dressing station suffering from severe head injuries. The injuries were in the lower occipital region of the skull, and were caused in one instance by shrapnel, in the other by high explosive. The shrapnel had caused a small fracture of the occipital bone, through which blood oozed, and the high explosive some bruising of the back of the head and neck. The men suffered from very severe shock and were quite unconscious of their surroundings, but exhibited the rather striking combination of a rambling and muttering delirium, associated with mild and frequent laughter.

There was here the suggestion of a continuous stimulation of the emotional centre for laughter, and as laughter is a modified form of respiration, an injury to some area near the respiratory centre in the floor of the fourth ventricle might account for the condition. The difficulty is that high explosive tends to spread its energies, and other centres of the brain may have suffered from concussion.

According to Sherrington (Schäfer's *Textbook of Physiology*) the respiratory apparatus is in the higher groups subservient to the emotional and mental expression, and he states that the bulb possesses inhibition to a great extent.

Nitrous oxide over-stimulates the respiratory centre and causes laughter, but, as in the case of chloroform and alcohol, the accepted opinion is that the preliminary excitement is due, not to stimulation of the brain areas, but to lessened activity of the functions of control and restraint. But a direct stimulation of the emotional centres is possible, and injury may reveal the truth where experimental work is impossible.

Edinburgh. J. M. MACPHAIL, M.D.Edin.

EARLY DIAGNOSIS OF WHOOPING-COUGH.

WITH reference to the memorandum from Dr. H. W. Jacob (April 22nd, p. 589), I would recommend him to have a blood count made in all suspected cases of whooping-cough. In all true cases of whooping-cough there will be found a marked lymphocytosis, and this is present some considerable time before the development of the characteristic cough. It is also helpful in the diagnosis of those cases in which the characteristic cough is absent or not heard. I am unfortunately not able to give any references to the literature on the subject.

J. F. CROMBIE, M.D., Major R.A.M.C.
British Expeditionary Force.

THE *Boston Medical and Surgical Journal* states that when the United States undertook the treatment of leprosy in the Philippines there were about 600 cases in the islands. The island of Culion, which afforded excellent opportunities for agricultural work, was chosen as a place of segregation. Four hundred dwelling-houses, a theatre, a town hall, a school, and a harbour were built, and provided with a water supply and with sewerage and lighting systems. The colony now numbers about 3,500 lepers. They are given all possible liberty, organize their own police force, elect their own mayor and council, and take some care of the island. Attempts to interest them in cultivation of the land were indifferently successful, and a plan to induce them to take up cattle breeding—cattle being insusceptible of leprosy—is now under consideration. Treatment by chaulmoogra oil has given encouraging results; and already twenty-three lepers have been discharged as cured.

Reports of Societies.

THE BACTERIOLOGY OF CEREBRO-SPINAL FEVER.

AT a meeting of the Pathological Section of the Royal Society of Medicine on May 2nd the President, Dr. F. W. ANDREWES, F.R.S., gave a short account of the bacteriological results in 11 consecutive cases of cerebro-spinal fever admitted to St. Bartholomew's Hospital during the first four months of 1916. Only one was a military case; of the civil cases, four were under the age of 4 years, and six were older children or adults. The type of coccus was determined in each case by agglutination with serums supplied from Millbank by Lieutenant-Colonel Gordon. The two earliest cases proved to be Gordon's Type 1, the remainder Type 2, except one case in an infant, which could not be referred to any known epidemic type. The pharynx was always examined, and the meningococcus was found in every case, twice in great abundance, sometimes only in small numbers. In each case the pharyngeal and spinal strains were compared by agglutination, and were invariably referable to identical types, indicating that the pharyngeal infection was an integral part of the disease. Most of the cases remained carriers for several weeks, one for more than seventy days. Treatment was by repeated lumbar puncture, with the new Lister Institute serum, prepared with numerous diverse strains isolated during last year's epidemic. The serum had been successful, for, though 4 cases out of 11 died (mortality 36.36 per cent.), 2 of these were infants under a year old and one a child of 3. Only one adult died, of streptococcal septicaemia following mastoid suppuration, after the meningococcal infection had been overcome. In cases over 4 years old the mortality was only 14.3 per cent. The improvement following the serum was in most cases immediate; in three severe cases, in which it was given on the second and third day, the patients were convalesent in forty-eight hours. One baby of 5 months recovered. Blood culture was carried out in three early cases. Twice it was negative, and once positive, the meningococcus being recovered from every tube. This case recovered promptly after serum was given (intravenously as well as intrathecally). In a fatal case the coccus was also recovered from the heart's blood after death.

A Transplantable Lipo-sarcoma in the Guinea-pig.

Dr. J. A. MURRAY exhibited microscopic preparations of the above. The original tumour appeared to be a lipoma; but its transplantability, and the more cellular structure it acquired, indicated a sarcomatous character, although it did not invade or produce metastasis. The author had not been able to raise a subgrowth from a simple lipoma. Some of the fat droplets in the cells were derived from the Altmann granules, which were abundantly present. The granules were present in the cells of malignant growths as well as in those of benign, although by particular methods of staining their presence in the former was not disclosed.

Specimens illustrating Toxic Hepatitis.

Dr. B. H. SPILSBURY exhibited specimens of livers obtained from patients engaged in doping and munition work, and who had died from the toxic effects of volatile poisons present in the materials used. In some recovery was in progress, considerable areas of the hepatic tissue having been regenerated, whilst the rest of it had become fibrotic after its destruction from fatty degeneration.

The Treatment of Wound Infections.

A communication upon this subject by Captain W. PARRY MORGAN is printed at p. 685.

Dr. D'ESTE EMERY said that he very much regretted that the lateness of the hour prevented his dealing adequately with Dr. Parry Morgan's paper, which teemed with controversial points, on many of which he was in strong disagreement with the author. As regards the first question, the power of hypertonic salt solution to cause the flow of a large quantity of lymph from a wound, Dr. Morgan appeared to object both to the idea that it was a process of osmosis and also to the simpler and non-committal expression that the fluid was drawn out by the salt. The point was one that might properly be discussed before a physical society, but the important practical thing was that the application of a hypertonic solution to a sloughy wound the walls of which were teeming with organisms might determine a copious flow of what was, if not lymph, at least a fluid containing protein substances similar to those of lymph, and, what was of supreme value, containing defensive substances; so that after twenty-four or forty-eight hours no organism at all could be found in the secretion from the walls of the wound, though they might still be present in small numbers in cultures. Dr. Emery had a difficulty in following Dr. Parry Morgan's account of how this flow of fluid was brought about, and was not familiar with the cellular walls which he spoke about as existing in the walls of wounds. Further, if such occurred, he would have thought that if the tissues composing them were caused to shrink by the application of a strong hypertonic solution they would be narrowed and the outflow of fluid obstructed. Secondly, with regard to the formation of pus, Dr. Emery thought that the author somewhat misrepresented the views of the physiological school of treatment. The work of the leucocytes was done in passing through the infected tissues forming the walls of the wound. In their passage they ingested all the bacteria they could, and then passed on outward into the lumen, where they appeared as pus. This was in itself a bad thing, and must be got rid of by irrigation or drainage just as soon as possible, but it was an indication that the leucocytes were actively at work clearing out the bacteria from the tissues, and as such was a good sign. Whatever might be the technical difficulties in the way of investigation on this subject *in vitro* (and he thought they might be overcome), he pointed out that there was no doubt that in actual clinical practice the application of normal salt solution to the walls of a wound which had been treated with hypertonic salt solution did, as a matter of fact, determine such a flow of leucocytes to the surface. Dr. Parry Morgan appeared to agree with Sir Almroth Wright that salt in certain dilutions did stimulate the activity of the leucocytes, but did not think this was any advantage. Dr. Emery disagreed with this view, pointing out that the more rapidly the leucocytes travelled in the infected tissues the more quickly and thoroughly would they remove any bacteria which they encountered. On the third question, that of antiseptics, Dr. Emery agreed with the author that it was hopeless to expect them to diffuse any reasonable depth into the tissues in such amounts as to kill the organisms. He also pointed out that the author's views mainly applied to the parts at a fairly late stage when granulation tissue was present At this stage, perhaps, not much harm was done by antiseptics, but the case was different in the early stages. At that time the walls of the wound were formed of bruised and damaged tissues, sometimes inches thick, which were so injured as to be on the borderland between life and death. A very small added injury might be sufficient to cause much greater loss of tissue than would be the case had all the conditions been made favourable, and any antiseptic, whatever its nature, which would kill bacteria would kill healthy tissues and, still more, damaged ones, even though it were more highly diluted. He thought, therefore, that the use of strong antiseptic lotions in the early stages of wound treatment might be a source of grave danger.

Professor S. G. SHATTOCK remarked that the weak part of the author's general conclusions in regard to the use of hypertonic salt solution was, it seemed to him, that he (the author) confined his attention too closely to what was taking place at the immediate surface. The condition of the parts in life differed from anything which could be reproduced *in vitro* in that in the former there was a continuous movement of lymph through the tissues as well as a partial escape at the wound surface. The construction of the wall of a granulating wound was more aptly represented in Sir Almroth Wright's second diffusion experiment, carried out with cotton-wool in a test tube of fluid, than by viewing the surface as sealed with a membrane strictly comparable to that of a dialyzer. An abstraction produced by hypertonic salt solution from the immediate surface, even though it were not of chemically normal lymph, would in life be followed by a physiological replacement of the bulk lost from the zone beyond, and the passage of this lymph through the infected district

would bring about an increased phagocytosis, and in this way help to clear up the deeper infection; a thing which antiseptics could not directly effect. One could not fail to see, nevertheless, that the use of antiseptics (all of which were chemical irritants) involved the production of a defensive angio-neurotic oedema—vascular dilatation followed by a plasmatic or serous exudation, which would aid in clearing the infection below the actual surface; and this factor presumably was one which also accompanied the use of hypertonic salt solution.

The Mechanical Causation of Appendicitis.

Professor S. G. SHATTOCK made a communication dealing with the above subject, based upon the critical examination of a series of appendicular concretions, and of the contents of 125 appendices in persons dying from various causes, 100 being over 40, and 25 between the ages of 15 and 25 years. Any such mechanical cause, if it was to account adequately for the alleged increase in appendicitis, would have to be (1) of recent introduction, and (2) of a kind which would extend to all classes of the community. One such that had been suggested was the ingestion of particles of the silica glaze detached from the enamelled hardware now in such general use. These particles were, of course, absolutely insoluble in the alimentary canal. The author had not found a single flake of enamel in any of the many concretions he had examined, nor in the contents of any of the 125 appendices studied.

In regard to the possible injury producible by the ingestion of silica in miners, Dr. Watkins-Pitchford, the present Director of the South African Institute for Medical Research, Johannesburg, had kindly obtained for him the following information:

"Dr. F. Aitken, the superintendent of the Miners' Phthisis Sanatorium, near Johannesburg, states that 537 cases of miners' phthisis have passed through this institution without his having seen a single case of appendicitis amongst them, nor has he noted any history of attacks before their admission. Dr. H. A. Loesser, the senior medical officer of the Crown Mines, has neither noticed nor heard it suggested that appendicitis is more common amongst miners than amongst others. The director of the Native Affairs Department states that in July, 1915, there were 210,247 natives employed on the works and mines of the Rand; appendicitis is so rare that deaths from this cause are not classed separately. He holds that mine natives are not at all liable to the disease."

The use of "French chalk" in dentifrices was another possibility; this material—magnesium silicate—being quite insoluble in the alimentary canal. The material was easily recognizable microscopically, but the author had never found any in the appendicular contents, or as forming the centre of any concretion.

The use of cerebos salt, which contains a notable amount of magnesium phosphate, could be ignored, since the latter was readily dissolved at 37° C. in a solution of HCl of the percentage in which the acid is present in the human gastric secretion.

The hypothesis of most promise was that put forward by Mr. W. H. Battle—namely, that a new factor in the causation of appendicitis had been furnished by the particles detached from the steel rollers now almost universally used in grinding wheat for flour. After a lengthy investigation the author had, somewhat reluctantly, come to the conclusion that no proof of the theory was forthcoming. He had traced the fate of steel filings in flour to which they had been purposely added, in bread made from such flour, and *in vitro* under the action of hydrochloric acid. Steel filings kept in flour did not undergo oxidation. When flour containing such was made into bread (by means of yeast), the particles become slightly tarnished from an extremely superficial formation of ferric oxide (rust). When these particles were extracted from the loaf and incubated at 37° C. in a solution of HCl of the gastric percentage, an abundant evolution of H took place; the fluid on being tested gave a ferrous (chloride) reaction only, without any ferric. This was explained by the fact that any ferric chloride produced from the trace of ferric oxide present was reduced to ferrous in the presence of the free hydrogen. The point of this was, that as ferrous chloride produced no constipating effects, no intestinal and appendicular stasis, favouring the formation of a concretion, could be attributed to the ingestion of steel particles, assuming this to take place. The amount of solution which steel underwent in the acid within two hours, at 37° C., was small; the metallic particles would, therefore, pass with little change, into the intestine; and here all further decomposition would be prevented by the action of the sodium carbonate of the pancreatic secretion, which rendered the intestinal contents alkaline. Steel filings might be kept for an indefinite period in a solution of sodium carbonate (of the percentage in which this is present in the pancreatic secretion) without undergoing any oxidation whatever.

Mr. Battle had cited the pigmentation of the appendix which he had come across in certain cases furnished by operation, as suggestive of the prolonged ingestion of steel derived from flour.

The author had critically examined nearly all of these specimens, microscopically and microchemically, with the following result: The coloration was due to the presence of somewhat translucent spherules of dull brown colour, contained in connective tissue cells lying in the lymphatic tissue which surrounds the crypts; there was none in the muscular wall. When the sections were heated, *secundum artem*, in HCl and potassium ferrocyanide or potassium ferricyanide, no ferric or ferrous reaction was obtained in the spherules; when sections were freely treated with pure HCl, no solution of the pigment took place. The pigment was clearly, therefore, iron-free, and it followed from this that it could not possibly be iron or iron oxide that had reached the lumen of the appendix and been translated into its walls.

The exact nature of the pigment was a more difficult question; in general characters it resembled iron-free blood pigment, and its presence was possibly due to the absorption of blood from the interior of the appendix; in cases of melaena the author had on several occasions found blood in its lumen.

Passing on to the study of a series of appendicular concretions: These were examined, after being incubated in dilute alcohol, by careful scraping whilst they were rotated beneath water, the whole procedure being conducted under a lens. The actual centre was examined microscopically *in toto* by removing it to a slide and crushing it in Farrant's medium. In certain cases appendicular concretions formed upon a foreign body, such as a pin or fruit seed. The presence of a nucleus, however, was not only unnecessary, but in the great majority of cases there was none. The most careful examination *ad hoc* demonstrated that there was no differentiated centre whatever. The common appendicular concretion, as told microscopically, consisted solely of undigested plant débris. Cellulose was digested only in the large intestine and by bacterial action alone; the débris referred to comprised free spirals; sclerenchymatous cells, the thick-walled stiff and sharply-pointed hairs from the pericarp of the oat and wheat (abundant in oatmeal and flour); disintegrating cells, wood, and bast fibre, etc. These consisted of lignine or cutine, and were incapable of digestion. The author had found no cellulose in the concretions; this excluded the possibility that the formation of such concretions resulted from a defective digestion of that substance.

The amount of calcareous deposition (calcium carbonate and calcium phosphate) occurring about the débris which formed the concretion was variable; in many examples it was of very limited extent, the concretions in the wet state being hardly firmer than clay. Such deposition was to be ascribed to bacterial action: the deposit, in fact, might not inappropriately be named "appendicular tartar." He had not yet met with a proper appendicular calculus. The concretions consisted chiefly or very largely of vegetable débris, and the most accurate name for them was that of "stercolith."

One factor that might conceivably lead to an increase in the formation of appendicular concretions, and so to an increase in appendicitis, was the recent rise of vegetarianism. A diet consisting almost solely of fruit and vegetable would furnish a greater abundance of indigestible residue. In some appendicular concretions there were conspicuous numbers of oat and wheat hairs, but the author had not come across a concretion composed solely of such, and corresponding with the oat hair concretions at times met with in the human colon. In the museum of the

College of Surgeons there were several specimens of these curious formations, the first identified having occurred in a Lancashire carpenter who was accustomed to take oatmeal daily in some or other form at every one of his meals.

The augmentation of intestinal débris, it was true, did not, *per se*, make for the formation of a concretion; it was necessary to assume an appendicular stasis, or a functional or physical irregularity of the appendix, as a second factor; for under normal circumstances free ingress and egress took place from and to the colon. The different causes that led to stasis in the colon would bring about the same condition in the appendix; and given a superabundance of indigestible residue, the latter would contribute a factor towards the production of a concretion. In fact there was no very abrupt line between concretions and scybala, and the actual centre of a laminar concretion was at times a small collection of minute scybala.

In regard to the results of the author's examination of the contents of 125 appendices from persons dying of other causes than appendicitis: the observations were made by pinning out the organ, slitting it up under water, and sweeping out the contents, which were then broken down with the brush, and carefully irrigated, any sedimentary residue being examined in Farrant's medium. For the present purpose it was enough to state that he had in no case discovered any particles of steel. He had selected for examination 100 appendices from individuals over 40 years of age, in order that ample time might have elapsed for the accumulation of metallic ingesta, and twenty-five from persons between 15 and 25 years, since this was the period of the highest incidence of appendicitis.

Incidentally, the author had encountered during these examinations two forms of neoplasm for the presence of which the patients had not been admitted. In one case many small pedunculated adenomata projected from the mucosa—of the kind which at times grew in large numbers from the colon. In the other case the appendix was the seat of a typical columnar-celled carcinoma, which was in process of ulceration, and had deeply invaded the muscular coat—an exact miniature of a carcinoma of the colon.

The general conclusion at which the author arrived, therefore, was that no evidence was forthcoming to show that appendicitis was due to damage inflicted on the mucosa by the prolonged ingestion of physical irritants; and that the appendicular concretions often associated with acute inflammation were not attributable to an accumulation of inorganic material which served as a nucleus for the subsequent deposition of faecal débris.

ANNUAL CONGRESS OF THE OPHTHALMOLOGICAL SOCIETY OF THE UNITED KINGDOM.

THE annual congress of the Ophthalmological Society of the United Kingdom was held on Thursday, Friday, and Saturday, May 4th, 5th, and 6th, under the presidency of Mr. WALTER H. JESSOP, in the rooms of the Royal Society of Medicine, the clinical meeting being held at the Central London Ophthalmic Hospital. There was a very good attendance of members, and more especially of those from the provinces. The great success of the congress was in large measure due to the indefatigable energy of the President, who in his opening remarks referred to the loss the society had sustained by the death of Professor Straub of Amsterdam, and Mr. George Coats, and read parts of letters from the following, regretting their unavoidable absence: Professor de Lapersonne of Paris, Professor Haab of Zurich, Dr. Landolt of Paris, Professor Gullstrand of Upsala, Drs. Storey and Maxwell of Dublin, Dr. Maitland Ramsay of Glasgow, and Dr. Edgar Browne of Liverpool.

Some Ophthalmic Lessons of the War.

The PRESIDENT, in his inaugural address, first referred to the results of injuries of the eyeball. He stated that during the American Civil War 41 cases of sympathetic ophthalmitis occurred amongst 254 cases of destruction of the eye; that the German official returns for the war of 1870 showed that 55.6 per cent. of all cases of injury to the eyeball were followed by sympathetic ophthalmitis, and that in more than half of these cases the second eye was involved within a year of the injury. During the present war, owing to the excellent work of the ophthalmic surgeons in France and elsewhere, he had neither seen nor heard of a single case of sympathetic disease.

In dealing with the occurrence of papilloedema in relation with head injuries, the President said that, as he had already shown, it was often transient and disappeared without leaving any permanent residue; this, he believed, was in entire accordance with the views as to the pathology of papilloedema expressed by Leslie Paton and Gordon Holmes as a result of their excellent work.

In dealing with the retinitis which had occurred in a number of cases of trench nephritis, he expressed the opinion that it was purely toxaemic in origin, and that vascular changes were of no importance in its production. He looked upon the process as due to a severe retinal oedema, and referred to several cases under his care in which almost complete subsidence of the retinitis occurred with complete restoration of vision. The retinal changes might come on at a comparatively early date after the onset of nephritis.

Suitable reference was made to the excellent work of the French ophthalmic surgeons, Rochon-Duvigneaud and others, and the hope expressed that similar work would be done in this country. Mr. Jessop concluded by a short reference to the gravidic, diabetic, and tuberculous lesions of the eye, which he believed to be due to toxaemia.

Hereditary Optic Atrophy.

In an important paper on hereditary optic atrophy (Leber's disease), Mr. HERBERT FISHER brought forward evidence that it was dependent upon changes in the pituitary body. Having referred at length to the literature, he pointed out that in some cases the defects in the visual fields were remarkably symmetrical. He believed that this could not be explained as due to atrophy following the transient papilloedema which had been described in Leber's disease, and argued that the symmetry of the defects pointed strongly to direct implication of the visual pathways by a single lesion. He suggested that temporary disturbance of moderate degree of the pituitary body might be adequate to explain the phenomena of this disease. He drew a parallel between the signs and symptoms of Leber's disease and disease of the pituitary. Frontal headaches, vertigo, epileptiform attacks, and subjective visual phenomena were seen in both, as also a somewhat characteristically mild degree of papilloedema. The relation of the pituitary gland to the sexual organs was very close, as was seen in precocious or arrested development of these organs and impotence in pituitary disease, and the enlargement of the gland which occurred during pregnancy. So in Leber's disease there were two periods of onset—one at about the age of puberty, and a second period in women at the time of the menopause. The very close anatomical relation of the chiasma to the pituitary was insisted upon. Two children, the subjects of Leber's disease, were examined as to the existence of any abnormality in the sella turcica by means of *x* rays; in one no abnormality was found, but in the other unusual conditions were certainly present. This positive fact, taken with the considerations set out in the paper, led him to suspect that when an opportunity offered to some observer, it would be found that Leber's hereditary optic atrophy was primarily due to an inherited temporary disorder of the pituitary body.

The Retinal Circulation in Arterio-sclerosis.

Mr. FOSTER MOORE'S paper dealt with the condition of circulation in the retinal arteries in cases of severe arterio-sclerosis. He argued that high pressure in the large arteries was the result of obstruction to the flow in the small vessels, and that therefore the pressure in the retinal arteries might be subnormal, whilst that in the brachial artery was 250 mm. Hg, or higher. The chief evidence in favour of this view was based on two series of observations: (1) That in some cases of arterio-sclerosis a very light pressure on the eyeball was sufficient to produce arterial pulsation, showing that the diastolic pressure in the retinal artery was but slightly above the intraocular pressure, which might be taken as 20 mm. Hg; (2) that whilst the intraocular pressure in arterio-sclerosis, as in health, varied directly with the local pressure in the vessels of the eye, yet it was not raised in arterio-sclerosis. Mr. Foster Moore believed that his observations on the eye were true of the brain and other tissues of the body, and

argued that vigorous measures carried out for lowering the blood pressure in such cases, were likely further to deplete the already curtailed blood supply to the tissues, and thus be harmful rather than beneficial.

(To be continued.)

Reviews.

THE HOUSING LEGISLATION MUDDLE.

ALLAN'S *Housing of the Working Classes*,[1] the fourth edition of which is just published, goes some way towards the elucidation of the law on a subject which has recently suffered five Acts of Parliament. The principal Act—the Housing of the Working Classes Act, 1890—was itself passed in order to consolidate some seventeen statutes, all enacted with the object of providing and improving the dwellings of the working and artizan classes. That Act was in its turn most imperfect, and was amended by several other Acts passed in 1894, 1900 and 1903, and by Part I of the Housing, Town Planning, etc., Act, 1909. The result is that the law has again become involved in much the same tangle as brought about the passing of the Consolidating Act of 1890. In this state of muddle the authors have conceived the happy idea of setting out the law as they conceive it to exist at the present time in the form of a Consolidating Bill annotated with reference to the Acts now in force. This, which forms Part III of the work, together with an admirable general summary of what the authors believe to be the law, should prove of considerable assistance to those who desire to acquire a general view of the confused jumble of enactments affecting this subject. Broadly speaking, the intention if not the effect of the Acts seems to be to empower local authorities to deal with large unhealthy areas by making them the subject of an improvement scheme; with small unhealthy areas, by making them the subject of an improvement scheme; to demolish houses unfit for habitation or obstructive buildings causing other houses to be unhealthy, and to erect dwelling and lodging houses for the working classes in districts where such dwelling houses or lodging houses are required. In the exercise of these powers the Acts provide that the local authorities shall act in accordance with the written representations of the M.O.H. or inspector of nuisances as the case may be, and to such officials the book should prove of service. To the ordinary medical practitioner, however, it will be of little utility.

As to whether legislation is any more wisely inspired in the United States of America than in this country we are not thoroughly informed, but we suspect not. Yet there can hardly be such an accumulation of badly constructed, narrow-visioned opportunist laws in the States, because, to judge by Dr. MACNUTT'S *Manual for Health Officers*,[2] the profession of the health officer has arisen in America during the last decade. His book contains the fundamental data required by such an official. The first hundred pages deal with the organization and powers of health authorities in the United States of America. The bulk of the volume is devoted to public health administration. Communicable diseases receive nearly two hundred pages, then follow chapters on child hygiene, milk, water, housing, nuisances, vital statistics, publicity, and other important matters. There are sixty pages of appendices. The book is comprehensive in its scope, and most of its contents are as applicable to the circumstances of this country as to those across the Atlantic. It is clearly written and covers a great deal of ground, and is packed with detailed information that should be of great service to medical officers of health as well as to all students who are making a serious study of the subject.

[1] *The Housing of the Working Classes Acts, 1890-1909, and the Housing Acts, 1914; Annotated and Explained, together with the Rules, Regulations, Forms, and Instructions of the Local Government Board.* By C. E. Allan, M.A., LL.B., of the Inner Temple, Barrister-at-Law; assisted as to the Practice by F. J. Allan, M.D., D.P.H. Fourth edition. London: Butterworth and Co. 1916. (Demy 8vo, pp. 480. 12s. 6d. net.)

[2] *A Manual for Health Officers.* By J. S. MacNutt, A.B., S.B. With a Foreword by W. T. Sedgwick. New York: J. Wiley and Sons, Inc.; London: Chapman and Hall, Ltd. 1915. (Post 8vo, pp. 660. 12s. 6d. net.)

THE MEDICAL ANNUAL.

The Medical Annual[3] for 1916 is the thirty-fourth annual issue. Naturally its contents are tinged a khaki tone in many sections; a special chapter is given to naval and military surgery, the great changes that have taken place recently in the treatment of wounds are adequately discussed, and there are many pages of interest dealing with the treatment and prevention of the many infections and other disorders to which soldiers are peculiarly liable. The first twenty pages of the volume give a review of progress in therapeutics during the year 1915. The bulk of the book—nearly 600 pages—is occupied by a dictionary of treatment, in which the medical and surgical progress for the year is recorded under the heading of the diseases for which each line of treatment is designed. Five-and-twenty pages follow in which a general review of naval and military surgery is given. Wound infections and their numberless new treatments are described in an excellent special article of twenty-six pages. At the end of the volume a quantity of important miscellaneous medico-legal and other information is given in a special section. The whole volume is excellently illustrated, and, like so many of the books issued by its publishers, it has a first-rate index. We conclude this brief notice by cordially recommending the new volume of *The Medical Annual* to the attention of all practitioners of medicine; they will find it good reading and an excellent investment.

NOTES ON BOOKS.

A GENERAL and popular discussion of the physiology of nutrition is supplied in pre-digested form by Mr. P. G. STILES'S little book on *Nutritional Physiology*.[4] Prolonged study of the literature of the subject has convinced him of the difficulty of making any dogmatic and uncompromising statement about foods and feeding. Judgement must therefore be held in suspense. But as the reader is presumably acquainted with no more than the elements of physiological science, he has no special knowledge enabling him to balance the *pros* and *cons* bearing on the many debatable questions to which Mr. Stiles refers. Hence perusal of his book is not unlikely to arouse a feeling of insecurity and uncertainty on the one hand, and on the other a feeling of irritation at the inability of the writer to come down on either one side of the fence or the other. To say this, however, is not to criticize the patience and skill with which Mr. Stiles has selected his facts and arguments, nor to deprecate the nice poise of his judicial faculties.

One of the many causes that commonly lead to the writing of a book is the drifting of a square peg into a round hole. In the case of *A Dominie's Log*,[5] the peg would seem to have been irregular and highly angular rather than square, the hole a berth as teacher in an elementary school under the Scottish Education Department. The book consists of eighteen chapters, in which the fictitious author discusses first and foremost himself, and secondly the rottenness of the society in which we live. Among the few prophets or authorities he can quote with approval are Ibsen, Shaw, and Wells. Apparently he would have us believe that he is a bold and bad young man, bosom friend of an actress in a musical comedy touring company, eager to swindle a railway company by travelling without a ticket on any possible occasion. A terrible fellow indeed! It is to be hoped that he will presently find a more congenial occupation than teaching, and some objects more agreeable to contemplate than his own personality and the sins of modern society.

For those who wish to teach themselves modern Greek the little book by Mr. ANASTASSION[6] may be recommended. Starting with the alphabet, it takes the learner up to the point where he can travel and shop for himself. A phonetic pronunciation on Thimm's system is used throughout.

[3] *The Medical Annual: A Year Book of Treatment and Practitioner's Index.* 1916. Thirty-fourth year. Bristol: J. Wright and Sons, Limited; London: Simpkin, Marshall, Hamilton, Kent, and Co., Limited. 1916 (Demy 8vo, pp. 912; 52 plates, 94 figures. 10s. net.)

[4] *Nutritional Physiology.* By P. G. Stiles, Instructor in Physiology in Harvard University, etc. Philadelphia and London: W. B. Saunders Co. 1916. (Post 8vo, pp. 288; 23 figures. 6s. net.)

[5] *A Dominie's Log.* By A. S. Neill, M.A. London: H. Jenkins, Ltd. 1915. (Post 8vo, pp. 219. 2s. 6d. net.)

[6] *Greek Self-Taught (Modern), with Phonetic Pronunciation (Thimm's System).* By N. Anastassion. Second edition. Marlborough Self-Taught Series. London: E. Marlborough and Co. 1915. (Cr. 8vo, pp. 120. 2s.; cloth, 2s. 6d.)

THE LONDON AND COUNTIES MEDICAL PROTECTION SOCIETY.

THE annual general meeting of the London and Counties Medical Protection Society, Ltd., was held at its offices, 32, Craven Street, Strand, W.C., on May 3rd. Dr. G. OWEN FOWLER, who was in the chair, referred to the loss the society had sustained through the death of Dr. Heron, one of its founders, treasurer and chairman of council down to 1913, and afterwards president. Few except members of the council knew how much work he did for the medical profession both in the society and otherwise. When reviewing the work of the society during the last year, the chairman said that the war had affected the society in two ways. In the first place, young men qualifying during the last eighteen months had immediately joined the army and had not realized the necessity of insuring; and, secondly, a number of members who had joined the army had retired from the society believing that it would no longer be able to help them. While appealing to members who joined the army not to leave the society, the chairman said it had been decided that those who had so resigned to take temporary military duty would be readmitted without the usual entrance fee, or as an alternative would be permitted to continue membership on paying up arrears. While the war had diminished somewhat the amount of litigation the administration of the Insurance Act was a source of frequent discussion between the contracting parties. The tendency of the Commissioners and Insurance Committees to usurp power over medical practitioners needed to be combated by such a society as the London and Counties, which would not be afraid of taking the matter, if necessary, to the House of Lords. The system of fining doctors in substantial sums for alleged faults was never contemplated by the Act, and required close watching. Clause 13 of the agreement should either be struck out or so amended that it could not be used as it was being used at present. The chairman continued as follows:

The idea of that clause is that we, as doctors, agree to reimburse the different local Insurance Committees in sums they may be out of pocket, or any expense they may have to incur, because the medical men were absent and had not left any locum tenens to do the work of the Insurance Committee. I say that is the idea of that clause, whereas the Commissioners are using that clause to inflict fines up to any amount—in one case even to the amount of £50—for something which they considered the doctor had not done which he should have done. I may say that the Insurance Committee that reported this case to the Commissioners themselves disagreed with the amount of the fine, and said it was out of all proportion. It is not generally understood, I think, that the clause does not say doctors may be fined for not doing anything they should have done, directly, but the Commissioners can abstain from paying the Insurance Committee any sum they like in respect of any doctor who they think should be fined, and the Insurance Committee has to get that amount back from the doctor. If something is not done with this Clause 13, I very strongly suggest that no doctor signs that agreement, when the next time comes on, without serious protest as far as that clause is concerned. One of the matters for which fines have been inflicted was for inaccurate certificates, yet in a large number of cases the Commissioners themselves insist on doctors signing untrue certificates. In the certificate of National Insurance, you have to certify that the patient you have examined is incapable of work. But the large majority of the cases you see are not incapable of work. They are unfit for work, or it is not advisable for them to go to work; still, they are perfectly capable of doing so if they will. There are cases in which a doctor has signed certificates, the patient coming every fourth night or so and getting his medicine, but still keeping at work. The doctor had said he was unfit, and when calling upon him for an explanation they said: "You have signed a certificate that the patient was incapable, and yet he did his work; so it is an untrue certificate." This was pointed out to the Commissioners at a meeting in November, 1914, and they promised it should be altered, but it still goes on. They fine a doctor for giving a wrong certificate, and yet they make them do this in 80 out of every 100 certificates. Look how widespread the working of the Insurance Act is becoming; look at the number of patients, young girls who are wishing to "do their bit," but whose parents are perfectly able to keep them, and who have comfortable homes. They are doing all kinds of Government work, and the Government insist that they shall be insured patients, so getting stamp money from them week by week, and taking away the doctor's private patients, giving them back again to him at so much per year. I saw in the paper the other day that a thousand Belgians living at Letchworth have been accepted as members of an approved society, and are now entitled to the ordinary benefits of the Insurance Act. The Act did not suggest that we should attend all the people who come into the country, but doctors have to treat them at the rate the Government fix, and can any one say that that rate will not be the next hit of the Retrenchment Committee? With regard to fines on panel doctors, the Insurance Commissioners have inflicted a fine on a doctor of £10 for making a wrong diagnosis in a case of consumption. In this connexion the Insurance Committee reports that such fines in the case of panel doctors are generally excessive and disproportionate, and beyond what the justice of the case requires. What limit is there to this system of fines? The safety of the doctor becomes seriously imperilled if it is allowed to continue.

The Chairman went on to protest against the reduction of the notification fees, and criticized the action of the British Medical Association in suggesting that 1s. was an adequate fee in the case of measles. He suggested that the most dignified way for a medical man to deal with cases diagnosed as measles was to say to the parent or guardian, "This is probably a case of measles. Will you take the necessary steps?" and for the doctor himself to have nothing to do with the shilling fee. Dealing with the work of the society, he said that the financial position was stronger. The favourable balance in 1913 was £11,600, in 1914 £13,600, and in 1915 nearly £16,000. Investments had been written down by £974.

Resolutions adopting the report of the council and financial statement, electing Sir John Rose Bradford to be president of the society, and Mr. J. Herbert Parsons to be a member of council, and for the re-election of vice-presidents and members of council, and of the general secretary and financial secretary, were adopted.

INFANTILE MORTALITY AND THE RELATIVE VALUE OF MEASURES FOR ITS PREVENTION.

(*Continued from p. 660.*)

PRACTICAL VALUE OF MEASURES AGAINST INFANTILE MORTALITY.

IN his third Milroy Lecture before the Royal College of Physicians of London,[1] Dr. S. G. MOORE, M.O.H. Huddersfield, gave an account of the remarkable results in the preservation of infant life achieved at Villiers-le-Duc, a commune of the French Midi, by M. Morel de Villiers, who became mayor in 1884 and followed in the footsteps of his father, who had been mayor for some years before 1866. Dr. Moore gave a translation of a report made to the French Academy of Medicine, which confirmed the astonishing fact that the infant mortality in Villiers had been zero for ten years (1893–1903). The report embodied the text of the communal regulations. The preamble set out that it was the duty of the municipal authorities to endeavour to stop depopulation of the country by taking the measures necessary to prevent birth mortality and stillbirths and to do away with infantile mortality. Consequently the municipal council issued an order containing ten articles. The first provided that—

Every woman with child, whether married or not, having her home in the village, and not in possession of sufficient means to allow her to take upon herself the expense of the measures necessary to secure, as far as possible, not only her own life, but also that of the child about to be born, shall have the right to require the help of the village authority.

The second invites the woman to declare her condition, before the seventh month, at the office of the mayor, and state the midwife by whom she wishes to be attended. The midwife would then be instructed by the mayor to visit the woman and to ascertain that there was neither albuminuria nor dystocia, nor dangerous presentation. The third article provided that if the midwife then considered it necessary to call in a medical man she must at once notify the authority without giving the reason for the notice, and the authority then requests a medical man, chosen by the woman, to take the necessary measures. The fees of the medical man and of the midwife are paid out of a village fund for free medical aid, and do not involve any liability on the State or on the department; a grant of 10d. a day, paid to the woman if she stays in bed for six days, is drawn from the same fund. The fifth article required a woman who

[1] Published at length in the *Lancet* for May 6th.

takes in a child to nurse, if she does not feed it only at the breast, to provide herself with an apparatus to sterilize the milk. She can obtain the apparatus from the municipal authority at a low price, and poor mothers who nurse their own children can obtain the apparatus on loan. All infants placed out to nurse are weighed on the communal baby weighing machine every fortnight, and any illness in any nurse-child, especially diarrhoea, vomiting, or respiratory trouble, must be notified to the municipality within twenty-four hours. If a nurse fails to carry out these requirements her certificate may be withdrawn. The last regulation provided that every nurse bringing up her own child, or a child entrusted to her, whether at the breast or by bottle, who produces the child in good health at the age of one year shall be entitled to a grant of two francs a month, dating from the time when she began to nurse the child. An additional rule made later is that a midwife must call in a doctor if a confinement is not brought to an end within twenty-four hours. From statistics furnished by M. Morel de Villiers, it appeared that from 1804 to 1878 there were forty-three stillbirths, and only two from 1878 to 1903. The report to the Academy concludes as follows: "All the facts clearly impress upon us how necessary and essential it is to have the union, the combined strength of both the officials of the administration and the representatives of the medical profession. Isolated, their efforts, however good their intentions and wishes, will be fruitless and ineffective, but combined their efforts will be all-powerful. However, it is not always so, unfortunately."

In commenting upon the regulations, Dr. Moore enumerated what he considered to be their essential features. The first was that they are orders to the people concerned to do certain things, and not merely recommendations or advice.[2] The second point on which Dr. Moore laid stress was that every mother with child had the right to adequate assistance in child-bearing and was required to notify her pregnancy. Another point was that the midwives were required to ascertain that the pregnancy was normal; if it was not, they were required to notify the authority, which then paid a doctor chosen by the mother to take measures to bring about a satisfactory delivery. The regulations also provided for continuous supervision and provision for the infant by the authority. Dr. Moore observes that Villiers-le-Duc is a small place, that the life there is that of a simple rural village, that the numbers are small, and that the conditions in large urban communities are different. "When we remember," he continued, "that the infant mortality figure for the children of medical men is 40 in this country, it at once becomes manifest that there are factors in the problem which make it clear that the results at Villiers-le-Duc are not within our reach." Special attention ought, he considered, to be directed to the conclusion that success could only be obtained through the application of the combined strength of the officials of the administration and the representatives of the medical profession. Dr. Moore gave statistics of the progress of the notification of births in Hudders field, and said that it had been the means of causing many more people to consult the doctor than was the case prior to its inception.

Incompleteness of Present Measures.

Dr. Moore observed that in this country the right of the mother to adequate assistance in childbirth had not been established. The resources of the Poor Law were not truly and willingly accorded as a right, but were yielded grudgingly and under degrading conditions. Neither midwives nor doctors had the duty explicitly laid upon them to ascertain that the pregnancy was normal, or, in the presence of abnormality, to notify the facts. He continued as follows:

When the Huddersfield sanitary authority commenced to work in this field, it was suggested that provision need only be made for visits to the babies born in the poorer districts, but, after consideration, provision was made for visiting every baby born in the borough. The wisdom of this decision soon was justified. The assistant medical officers entrusted with the visitation of the mothers and babies immediately after birth were given a discretion. They were allowed to omit visits if they thought fit. (I may mention incidentally that they were instructed to behave exactly as they would in social life, not to enter a house—any house, however humble—without an invitation, not to seat themselves unless bidden to do so, and so forth.) Embarking on this work, they acted diffidently, as was natural. The result was that I received complaints, not that they had visited unduly or improperly, but asking: "Why was not my baby visited?" "How is it, since a visit was paid by the lady doctor to Mrs. ——'s baby, that she did not visit mine?" I think it is plain that assistance in these matters should be tendered to all, without distinction, and where it is declined it should not be pressed. Provided, of course, that there is reason to believe that the mother is really furnished with adequate assistance in her need.

Notification of Pregnancy.

He had recently been able to establish a system for the voluntary notification of pregnancy in Huddersfield, and when a pathological condition was found in the mother she was urged to call in a doctor. With regard to objections to the notification of pregnancy, he said:

I have heard the statement—in fact, it was made by a personage holding "high office"—that the notification of pregnancy is not to be thought of; that it would violate the privacy of family life and interfere with one of the holiest functions of humanity. With all respect, I affirm that only absence of information, nothing but lack of insight, can permit any one to entertain such views. I have heard of objections from the professional point of view. But objection from this source can only be based on misconception. In every case, so far as Huddersfield is concerned at least, every condition calling for medical treatment will be referred to the family doctor.

It may be and probably will be claimed, and it certainly ought to be the case that the claim might be made with strict propriety, that where a woman has engaged the services of a duly qualified medical practitioner, she does not need any further help. I cannot speak to-day with any definite opinion, but some years ago I know that it was not the practice of the family doctor, when engaged for a confinement, to make any systematic precise effort to satisfy himself that his patient was normal, and that none of the conditions which from time to time arise and which are so disastrous in their results are present. If it be the case that things are altered nowadays, and that the family doctor does exercise these precautionary functions, then manifestly his patients are not in need of any further assistance; but if the old-fashioned state of affairs persists—and the death returns appear to indicate that this is in fact the case—then, in my judgement, the medical practitioner may very well welcome such aid as can be rendered by a colleague whose function and duty it is to do so, it always being well understood that every case should be referred for treatment to the medical man of the woman's choice.

In concluding his lecture, Dr. Moore urged that the following things should be done at once:

"Require the universal notification of pregnancy. Secure for *every* mother adequate provision of the means necessary for a satisfactory termination of her pregnancy. Make provision for and require the supervision of every infant born. Prohibit fraudulent advertisements which destroy infants. Provide proper education."

[2] The regulations do not appear to us to bear this construction. As we read them, they lay it down that if a woman desires the help of the village authority she must fulfil the conditions of the several articles. The report was made by M. A. Pinard, Clinical Professor of Obstetrics in Paris, and is to be found in the *Bulletin de l'Académie de Médecine* (March 15th, 1904). The words are "Le Conseil municipal . . . arrête . . . Toute femme enceinte . . . *pourra* demander l'assistance de la Commune." The initiative is with the woman, who is offered certain advantages if she complies with certain conditions. M. Morel de Villiers states that the countrywomen readily accept the conditions, for they understand their usefulness. Villiers le-Duc is a village in the department of the Côte d'Or, with a population in 1804 of 447, and in 1903 of 230.

THE Columbia University has received an anonymous gift of £2,000 to be used for purposes of surgical research.

THROUGH the generosity of Mrs. Almeric Paget, the Miller General Hospital for South-East London in Greenwich Road has been able to extend its massage and electrical departments. Mrs. Paget has provided six masseuses to attend at the hospital daily, and two or more to attend in their own homes patients who, in the in the opinion of the medical officer, are not fit to go to the hospital. Mrs. Paget is also equipping the hospital with radiant heat baths, high frequency and other electrical appliances, and with gymnastic apparatus.

British Medical Journal.

SATURDAY, MAY 13TH, 1916.

EDUCATION AND THE NEGLECT OF SCIENCE.

THE developments of the war must be bringing home to everybody the importance of theoretical and applied science for the welfare of nations nowadays. What else is it but science that will bring victory to the Allies in the present state of Europe? What else is it but science that has enabled the Central Powers to hold on so long to the initial advantage they gained by going to war prepared? It is theoretical science, using the term in the widest sense, that dictates the means of war, discovers the explosives, devises the special steels used for all small arms, guns, and howitzers, invents and calibrates the range-finders, outlines provisions for the health of the armies engaged, and makes the thousand and one preliminary observations upon which the practical success of armies in the field from day to day depends. It is applied science in all its branches—the work of the chemist, the electrician, the expert mechanic, the metallurgist, the mechanical engineer, the exponent of applied mathematics, the surgeon and the physician, the sanitary officer—to mention but a few out of many scientifically trained experts—that places the possibility of victory on land and sea and sky in our hands. One may say so much without in the least belittling the work of our gallant soldiers in the trenches. It is they who do the fighting and give their lives for King and country. It is they who fill the foreground in the great battle-piece of the present war of German aggression. But behind them in the middle distance stand all the munition workers and operatives of the engineering shops, trained in applied science, working by micrometer and gauge and not by rule of thumb, and owing no small share of their efficiency to the calculated scientific design of the machinery they handle. And in the background of this great picture, above the battle yet in some sort ordering its progress, may be discerned the men of science whose wonderful inventions—the high explosive, the machine gun, the internal-combustion engine, the aeroplane, the airship—have rendered possible the hell-on-earth in which our armies are weltering. Granted that the position is ethically deplorable—that increase of knowledge should be applied to the increase of destruction of human life and the products of human labour—yet it is only a part of the abomination of war for which there is in ethics no defence, save to the followers of Bernhardi. But even so there are in this same background of the picture those other men of science, above the battle but in some sort ordering its progress, who by the knowledge they win through the applied science called research enable the soldier to protect himself against disease, to preserve himself to fight for his cause, and to make sure that if he must give up life and health it shall be owing to the acts of the enemy and after doing his part to win the final victory.

Quite apart from their importance in the conduct of war, theoretical and applied science are indispensable for the progress of the arts of peace, commerce and industry. Medical men who have found their supplies of drugs made in Germany cut off will be the first to realize the practical bearing of this fact. To workers in every department of science which has any bearing on practical affairs—and which science has not?—this has long been a platitude; there is now reason to hope that the truth is gaining general recognition and acceptance. Once it is recognized, the importance of giving an elementary training in science to all persons who are receiving any formal education at all will be accepted as a necessary corollary. We shall not then find members of the Government stating in good faith, and unchallenged, that it has recently been discovered that glycerin can be prepared from fatty substances, a fact proved by the great chemist Scheele as long ago as the year 1779, and familiar to every soapmaker since.

Most valuable work in bringing forward the claim of science to occupy a prominent place in all schemes of general education is now being done by "The Committee on Neglect of Science," a voluntary committee of scientific men who have the best interests of our empire at heart. Reference was made to its activities in the BRITISH MEDICAL JOURNAL of February 5th last (page 209). On May 3rd this committee held a meeting in Burlington House at which four resolutions aiming at the advancement of the teaching of elementary science were put forward. These resolutions were temperately worded, and may be taken to stand for the minimum demands to be made on our Government and educational authorities. They may be summarized as follows: The first resolution laid down the generalization that it is a matter of national urgency that the natural sciences should be made an integral part of the educational course in all the great schools of this country, and should form part of the entrance examination of the universities of Oxford and Cambridge, as well as of the newer universities.

The second and third resolutions really contain the gist of the whole matter and touch the vital spot. They affirmed that it is in the highest degree desirable that the Government should exercise the large power it possesses of encouraging the study of the natural sciences and thereby increasing the efficiency of our public servants, first by assigning capital importance to the natural sciences in the competitive examinations for the Home and Indian Civil Service, and secondly by requiring some knowledge of the natural sciences from all candidates for admission to Sandhurst. Remembering the large part played by scientific appliances and scientific methods in modern warfare, it is astonishing that this last request should still have to be made. As the matter is urgent and time is required to develop action, it should be at once taken in hand by the Government. The important point here is this, that the lead must come from above. The public schools cannot fairly be asked to strike out a line of their own and set the ball in motion by pushing the teaching of science; they have to teach the subjects asked for by the universities, the army, and the public services, where natural science is at a discount. In the same way the universities cannot be urged to strike the first blow for science; they have to consider the schedules of the chief examinations that university men have to face outside their universities, and here natural science goes for so little as to be worth almost nothing. The cure for this vicious state of affairs lies in the hands of His Majesty's Government and nowhere else; and so the fourth resolution very rightly instructed the committee to take such steps as it might consider appropriate to bring these views to the notice of the Government.

We wish the movement a full measure of success. The time is ripe, and more than ripe, for the reconsideration of the schedules of the civil service and other important public examinations. The object of such examinations is to detect and encourage ability in the candidates. Ability has been defined as the power to deal successfully with an unknown problem; an able man has been described as a person who does more than is expected of him. As Dr. Alexander Scott pointed out in his recent presidential address to the members of the Chemical Society, in the civil service examinations at the present time everything of a nature to test a man's ability to tackle an unknown problem, however simple its nature, is carefully excluded by cautiously worded syllabuses, which detail the range of the facts and the nature of the tests which may be applied. We are far from underestimating the difficulties that lie before those who have to make the public realize the importance of natural science and research as instruments of education, as well as of progress among the comity of nations in the world of to-day. But Dr. Scott's criticism of elaborate examination schedules is undeniably sound, and as well worthy of consideration as it must be familiar to our educational authorities. We bring it forward here because it bears upon the main endeavour of the Committee on Neglect of Science, which is to get the Government to help on the teaching of natural science by beginning to work, like charity, at home. The universities must follow the Government; they cannot, we fear, lead the way. The public schools must follow the universities.

THE HOUSING OF A VIRILE RACE.

DR. WALDO, who is coroner for Southwark as well as for the City of London, was, before he held his present offices, medical officer of health for the former borough. One of his last acts in that capacity was to present to the then (1900) newly-constituted borough council a report in which he urged the demolition by the London County Council, under the provisions of the Housing of the Working Classes Act, of certain houses and streets in the Tabard Street area of Southwark, on the ground that they were unfit for human habitation. As long ago as 1899 he had reported on a serious outbreak of typhus fever which originated in Tabard Street and spread to other parts of Bermondsey and Newington. It does not appear that any effective action has been taken either by the borough council, the London County Council, or the Local Government Board. As coroner he has held two inquests recently in each of which the jury appended a rider to its verdict expressing the opinion that the houses in which the deceased persons had lived were in an insanitary condition and totally unfit for human habitation. The coroner, in addressing the jury, said that the rooms condemned were small and unwholesome, and he thought it incomprehensible that the London County Council permitted such hovels—not fit for a dog or a donkey—to be relet. In one of the cases (that of a woman aged 53) the Poor Law medical officer who attended her had stated in evidence that it was necessary to hold up an umbrella in all parts of the room except the corner in which he found the woman lying dead. The rain had flooded the floor, and what remained of the wall-paper was lying in strips owing to the damp. In another case—a boy named Albert Martin, aged 9—death took place in a garret 8 ft. square and 6 ft. 6 in. high. In it the boy, the boy's mother, and three other children had lived. As these statements were made in open court by an officer of the Crown, they must, we presume, be accepted as correct, and they do not seem to have been denied by the authorities, although each shows itself concerned to shift the responsibility. The excuse of the London County Council is that the premises are not in its possession, and that the control of insanitary property is primarily vested in the local health authority—the borough council; but the borough council denies this, and the President of the Local Government Board stated in the House of Commons the other day that he had recently made an Order empowering the London County Council to proceed forthwith with the demolition of the worst houses in the area.

As so often happens, there seems to be difficulty in fixing responsibility for the delay in removing this plague spot, but the fact that such conditions should have been allowed to persist for a quarter of a century within sight of the palace of Westminster, where laws are made, and of Whitehall, where the administration of these laws is controlled, more than justifies the grave reproaches addressed to us by the Prime Minister of Australia within the last few months. In the speech he delivered after receiving, just across the river from Southwark, the freedom of the city of London on April 18th, he said that if we are to keep this empire as a heritage for the British race "we must create conditions under which the population of both these islands and the Dominions will rapidly increase and multiply. And as mere numbers avail nothing, we must create an environment which will breed a virile and resourceful people. Wealth will not save us, if our crop of such men fail. Lacking men, Rome and the mighty empires of the ancients fell, and the dust of ages covers their proud monuments. The defence of our empire rests ultimately upon the basis of a national policy in Britain herself, as well as in the Dominions oversea, that will organize and develop our tremendous resources, that will promote the welfare of the agricultural and manufacturing industries, and ensure to the great masses of the people those opportunities of employment, those conditions and remuneration of labour, and that standard of comfort which are the just heritage of a civilized people, and lacking which the British race will dwindle and degenerate, and our mighty empire crumble to decay. We must see to it, therefore, that from one end of this great empire to the other the gates of opportunity shall be slammed in no man's face. There must be a chance for every one."

What sort of chance would the boy Albert Martin have had living in a room 8 ft. square with his mother and his three brothers and sisters? What sort of ventilation was there in the room at night? What sort of place had he to play in by day, so that he might have the exercise every child instinctively desires? How much money was left to buy food for the five people after paying the rent of the 8 ft. square room? What sort of chance are the three other children having to-day? What sort of chance are the other family parties in the Tabard Street area having to make their contribution to "a virile and resourceful people"?

It is this kind of thing which is making a great many people ask themselves whether much of the public health legislation of the last decade has not been mere tinkering. How much is really to be expected from infant and mothers' welfare centres, tuberculosis clinics, and other legislative and administrative schemes, however well meant, when parents and children have to return to 8 ft. square rooms with no ventilation to speak of, but with leaking roofs?

There is clear evidence that such schemes when well administered are capable of doing good, and Dr. Moore in his recent Milroy lectures—an abstract of which has been published in our issues of last week and this week—shows that attention wisely directed to the care of the mother during pregnancy and at childbirth, and of the infant during the first year of life, is capable of achieving quite remarkable results in favourable circumstances. But is it reasonable to expect that such measures will produce much effect where the home conditions are so bad as in the condemned area in Southwark?

The whole history of housing legislation in this country is a monument of legislative ineptitude and administrative failure. In 1890 an attempt was made to consolidate in the Housing of the Working Classes Act some seventeen statutes enacted at various times to provide or improve dwellings for the working classes. At once the weary task of amending it had to be begun, and other Acts were passed in 1894, in 1900, in 1903, and in 1909, but in spite of all we have the Tabard Street area and a good many other areas not much better in London and other towns.

THE STANDARD OF VISION IN THE ARMY.

THERE has been considerable uncertainty as to the exact standard of vision demanded by the War Office for soldiers. This uncertainty has led to many men being rejected who are suitable for some form of service, and to many being passed into the army with visual defects which render them useless on active service. Men who have seen service in the trenches have, after their return home, been found to have such poor vision that they were not only valueless as fighting men, but actually a source of danger to their comrades. As examples we may cite cases of advanced congenital familial night blindness, congenital nystagmus, myopia of over 10 dioptres, and hypermetropia of 8 dioptres. On the other hand, we know of the case of a man who had $\frac{6}{3}$ vision in his right eye but a blind left eye who was rejected repeatedly for the R.A.M.C., although in civil life he was an efficient high railway official; and of a medical man who was recently rejected because he had slight myopia perfectly corrected by glasses. Every ophthalmic surgeon is aware of these facts. The visual standards seem apt to vary with the examiner. Probably little attention has been given to the very important question of the illumination of the types. Poor lighting may reduce the acuity very considerably, and a candidate with, say, $\frac{6}{18}$ vision might easily be rejected by an examiner who had no adequate arrangements for illuminating his types. In the presence of such confusion it may be useful to summarize the regulations in force at the present time. They are as follows: (*a*) If a recruit has an acuity of $\frac{6}{24}$, or better, with each eye without glasses, he is to be considered "fit"; (*b*) if his acuity is $\frac{6}{24}$ with the right eye and not less than $\frac{6}{60}$ with the left eye without glasses, he is "fit"; (*c*) if he can see $\frac{6}{24}$ with the left eye and not less than $\frac{6}{60}$ with the right eye, he is "fit" for the A.S.C., the R.A.M.C., the A.O.C., and drivers of the R.A. and R.E. These regulations apply to *general* service in the field. A later regulation says that: A man is fit for *garrison* service at home or abroad if he can see well enough to shoot with the aid of glasses. This regulation is ambiguous, for it does not state the acuity necessary for shooting. We presume, however, that if $\frac{6}{24}$ is enough for active service without glasses, $\frac{6}{24}$ with glasses will be sufficient for garrison duty. We would, however, again impress upon those who examine recruits that it is absolutely essential that the test types be well illuminated and placed at six metres (20 ft.) from the candidate. If the room be too small, a set of types graduated for five metres should be employed.

THE NOTIFICATION OF INFECTIOUS DISEASES AND TUBERCULOSIS.

THE annual report on public health and medical subjects, furnished by its medical officer to the Local Government Board, presents, for the fifth year in succession, full statistics of the incidence of notifiable infectious diseases in each sanitary district in England and Wales. These tables, prepared under the supervision of Dr. Arthur Newsholme, not only supply information with regard to numbers, but enable the reader to trace the actual local incidence of any of the scheduled diseases, and to ascertain the rate of such incidence per 1,000 of the population. The occurrence of local outbreaks or the relative immunity of any one town or district during the year can thus be discovered and examined with equal ease. Thus, in the case of cerebro-spinal fever, which would appear to have been very much more frequent during the last twelve months, it may be noted that whereas the larger proportion of the cases could be located in only nine districts, still the general incidence of the disease was very widespread. Acute poliomyelitis, on the other hand, showed no increase, although the cases were, in like manner, very widely distributed. Of these two diseases, it is interesting to note that cerebro-spinal fever appeared much more frequently during the months of March and April than at any other time, while poliomyelitis occurred far more often during the autumnal months. The incidence of pulmonary and other forms of tuberculosis would appear from the published figures to have diminished progressively during the last few years, but it is pointed out that there may have been a good deal of duplication, so that the true value of the figures given is uncertain. It is obvious that the freedom from tuberculous disease of any town or district cannot be accurately gauged from the number of cases notified in any one year. It is by no means unlikely to happen that in one year there may be hardly any new cases to record, while a considerable number of previously notified cases are still resident in the locality, their disease steadily increasing and with it the danger of infection, slight as it is, to those who may be associated with them. The presence or absence of acute infectious diseases may be fairly estimated from notification statistics, but such statistics may be wholly misleading in the case of tuberculosis.

THE VOLUNTARY RESTRICTION OF BIRTHS.

IN the Lower House of Convocation at York last week an interim report of the Committee on Moral Corruption and Social Life was discussed. It dealt with the decline of the birth-rate, and suggested the appointment of a Government Commission. Canon Lambert of Hull alleged that the clergy did not sufficiently recognize that this was not simply a social question for the State, but had a moral and spiritual side with which the clergy were at much more liberty to deal. This home thrust was countered by Canon Rountree of Manchester, who made an attack upon medical men. "I cannot help feeling," he said, "that not only do they not use their influence in correction of the evil, but that very often they are offenders in the matter of encouraging artificial restriction." The Dean of Carlisle characterized this as a very serious charge, and asked Canon Rountree for facts. The medical profession, the Dean said, had always exercised enormous influence, and if it were believed in the country they were encouraging these practices it would be a terrible thing. Canon Rountree does not appear to have attempted to produce any facts, and, so far as we know, he will have difficulty in finding them. We are quite aware that there are a certain number of members of the medical profession who have been bitten with the notion that over-population is the root of most of our social evils, and that they have formed a society which has been in existence for a good many years without commanding any appreciable measure of professional support. It is, of course, possible that Canon

Rountree has come across some member of this medical sect, but if this be the only ground for his charge then he is committing the very common, but none the less very pernicious, fallacy of arguing from the particular to the general.

SUPPRESSION OF QUACKERY BY THE GERMAN ARMY.

It appears that in Germany the quack has attracted the unsympathetic attention of the military authorities. Indeed, if the measures directed against him are as effective in practice as they appear on paper, there is every prospect of his being dragooned out of existence by the provident Prussian. In some military districts unqualified practitioners are totally prohibited from advertising, and they are forbidden to print "puffs" of methods of treatment, apparatus, and tonic and prophylactic remedies. In other military districts the unqualified practitioner is no longer allowed to treat venereal disease, nor to advertise as a specialist in diseases of the skin and abdomen, under which heading he has in the past caught many a patient suffering from venereal disease. The advertisements of abortifacients and conceptional preventives, thinly veiled under such headings as "Discreet advice," "Advice for women," etc., have also been suppressed. Even the anti-vaccinationist has not eluded the "verboten" list, for the publication and distribution of treatises, handbills, and other vehicles of agitation against prophylactic inoculations in the army are forbidden. We have already referred to Hindenburg's drastic regulations against venereal disease. So far no uniform system has been adopted throughout Germany, and each military area seems to have independent regulations. Indeed, in some commands no active measures have been adopted. But on the whole the suppression of quackery by the military authorities during the war seems to have proved very effective, and the hope is expressed[1] that the prohibition of quackery, which has proved so successful in war time, will be continued in a modified form after the war.

ELECTRICAL METHODS IN SURGERY.

In a lecture at the Royal Institution on May 5th Sir James Mackenzie Davidson contrived to bring within an hour's survey the various respects in which electrical science is proving to be the handmaid of war surgery. Chief among the electrical methods, of course, was that of x rays, and the lecturer showed very skilfully, by means of experiment, at once the value of the skiagraph and its possible fallacies. He exhibited two x-ray pictures of exactly the same subject, but taken with the tube in slightly different positions, with the result that in one case a bullet appeared to be lodged in the right lung, and in the other in the left. The single x-ray photograph, he said, however realistic it might appear, was not like an ordinary photograph, from which the relative positions of objects could be inferred with some accuracy; it was a shadow-picture, and therefore might be very misleading. To obviate the fallacies, he recommended the stereoscopic method, which, however, was still inadequate for exact localization, which required some system based on precise measurements, such as the cross-thread method. The lecturer also showed that electrical means were available, not only to ascertain the position of the bullet in the body, but to guide its extraction. Of these methods he instanced the telephone attachment, by means of which a click or rattle was communicated to the receiver whenever the surgical instrument touched the foreign body—the telephone forceps, with x-ray screen in combination, and also the Bergonié electro-magnet. He concluded with a tribute to that shadow army—from ambulance worker to surgeon-general—who followed the movements of the combatants with the same precision and assiduity as the shadow, in some experiments he had been showing his audience, had followed every change in the position of the lamp.

[1] *Therap. Monatshefte*, January, 1916, (Reported in *Norsk Magazin for Laegevidenskaben*, April, 1916.)

APPARENT DEATH AND PREMATURE BURIAL IN INFANTS.

From time to time ghoulish novelists and writers of short stories make the flesh of their readers creep by describing premature burials. Even musicians have attempted to do the same thing in another medium, as a well-known prelude by Rachmaninoff gives witness. Professor Baculo of Naples, after describing[1] one of the not uncommon cases in which an infant, after apparent death, comes to life again for a longer or shorter period, gives details of an apparatus he has devised to prevent the possibility of burial during life. His patient, a child 2 months old, with diffuse bronchiolitis, to all appearances died suddenly after the administration of several litres of oxygen to counteract the asphyxial attacks from which it suffered. Respiration and the action of the heart both stopped; but half an hour later rhythmical movements of the jaw, lips, and alae nasi were observed. The heart began to beat again, slowly at first, and respiration began once more, jerky at first, presently of the Cheyne-Stokes type. Consciousness was recovered and the infant took the bottle again, but four hours later died in an attack of asphyxia. This time death was real and not merely apparent. Professor Baculo goes on to a general discussion of the phenomenon of apparent death in infants. Death, he says, is a process, not a sudden event, and is indistinguishable at first from a merely temporary suspension of life. This is particularly true of the sudden deaths of infants, attributed in various cases to such causes as hypertrophy of the thymus, enlarged mediastinal glands, disease of the parathyroids, acute diseases of the lungs or stomach or nervous system, foreign bodies in the air passages, congenital defects of the heart or brain, fits, and diseases of the kidneys, suprarenal glands, or skin. He describes a number of the physical signs or tests that have been proposed to distinguish between true and apparent death. Bouchut, for example, remarked that after death the retinal arteries empty, the fundus oculi turns leaden grey, and, most certain sign of all, the optic disc becomes invisible. Icard advised the subcutaneous injection of fluorescein solution twenty minutes, and again twenty hours, after apparent death; when, if the patient still lives, the conjunctiva turns yellow and the skin turns green. To wait for such certain signs of death as decomposition of the tissues and the formation of bullae on the skin is not always convenient; nor is the employment of mortuary chapels in which the body rests for at least twenty hours before burial. Professor Baculo observes that after death the lungs are in a state of forced expiration. His apparatus for the detection of apparent death and the prevention of the premature burial of infants is quite simple. It consists of a cradle in which the body is laid for twenty-four hours after apparent death; a lever is pivoted on one side of this, with a vertical arm descending to rest on the ensiform cartilage at one end, while the other end of the lever is arranged to make an electrical contact and ring a bell should it move downwards. If the infant is alive it will presently breathe, and if it breathes, the sternum will rise with inspiration and cause the bell to be rung. Professor Baculo argues that some such apparatus should always be available in public institutions for children.

[1] *Giorn. Internaz. d. Sci. med.*, Naples, 1915, xxxvii, 625.

ILLUMINATION PROBLEMS.

The present time, when so much attention is being devoted to the promotion of scientific and industrial research, has seemed to the Illuminating Engineering Society opportune for resuming the work of its Special Committee on Research which, under the chairmanship of

Professor Silvanus Thompson, was appointed just before the outbreak of war, and at the meeting of the society on May 9th it presented an interim report which was mainly concerned with a survey of the many problems which await attention. Priority is to be given to investigations relating to the development of lamps and lighting appliances. The subject of glare is also to be studied together with the limits of permissible intrinsic brilliancy, on which a suggestive report has been issued by a similar committee in the United States. The British committee is also setting itself to deal with the comparative effect on vision of natural and artificial illumination and of various systems of artificial lighting from the point of view of fatigue. An important matter, often discussed but never authoritatively settled, is the standardization of the so-called artificial daylight—that is, the various forms of artificial light used in conjunction with special devices to imitate the colour of natural light. An attempt is now to be made to arrange the chief artificial illuminants in the order of their resemblance to daylight. At present there is no universally accepted standard of white light, nor any generally accepted standard white surface. It is thought that street lighting after the war will be a good field for effort, particularly as regards more scientific treatment in the shading of lamps and the distribution of light. The conception of a minimum illumination desirable in the interests of safety is to be encouraged. Among some general suggestions for work which is to occupy the committee is the lighting of hospital wards, which at present is often unsatisfactory. There is also room for investigation in the lighting of operating tables. The subject has also to be studied in connexion with field hospitals using portable lamps. The committee, which includes one medical member, Dr. James Kerr, is certainly to be congratulated upon the comprehensiveness of its programme.

A MEETING was held at the Royal Army Medical College, Grosvenor Road, S.W., on May 10th, to consider the advisability of establishing benevolent societies for the benefit of the widows and orphans of officers, non-commissioned officers, and men of the Royal Army Medical Corps of the Special Reserve the Territorial Force and the new armies. After some preliminary discussion, it was resolved to adjourn until some date next month, which will be duly announced, when it is hoped that a considerable number of officers of each branch may attend and give expression to their views.

Medical Notes in Parliament.

Compulsory Service.

THE bill "to make further provision with respect to military service during the present war," the Committee stage of which was begun in the House of Commons on May 9th, contains fourteen clauses. The first extends and continues the operations of the Military Service Act, 1916. It provides that every male British subject who has at any time since August 14th, 1915, or for the time being is, ordinarily resident in Great Britain, and who has attained the age of 18 and has not attained the age of 41 years, shall be deemed as from the appointed date to be duly enlisted in His Majesty's Regular Forces for general service with the colours, or in the reserve for the period of the war, and to have been forthwith transferred to the reserve. The clause does not apply to a man who has attained the age of 41 before the appointed date. Nor does it apply to men who come within the exceptions set out in the first schedule to the Military Service Act, 1916, as maintained by the bill. The exceptions include men ordinarily resident in the Dominions or resident in Great Britain for the purpose of education or some other special purpose; men in holy orders or regular ministers of any religious denomination; men who have been discharged from the naval and military services in consequence of disablement or ill health. The second clause extends the period of service in the Territorial and Reserve Forces for the duration of the war. Clause 3 provides that a man who has offered himself for enlistment and been rejected since August 14th, 1915, may be called upon unless the Army Council is satisfied that he need not again present himself for medical examination and sends him notice to that effect. Clause 4 deals with certificates of exemption, and provides *inter alia* that a certificate of exemption may be granted subject to the condition that it shall not be renewable except on application made with the leave of the tribunal. Clause 5 amends Section 3 (3) of the principal Act, by providing that a man who has not obtained a renewal of his certificate shall be deemed to have been enlisted and transferred to the reserve within two weeks instead of two months after the expiration of the certificate. Clause 6 deals with proof of offences in connexion with deserters and absentees. Clause 7 with the production of certificates of exemption, and Clause 8 with the issue of notices. Clauses 9, 10, 11, 12, 13 and 14, are as follows:

9. *Transfer to Reserve under Special Circumstances.*—The Army Council may make arrangements, to take effect during the continuance of the present war, for the transfer to the Reserve of any member of the regular forces, or for the temporary demobilization of any member of the Territorial Force, notwithstanding anything in any Act or in the terms of his enlistment, in cases where the transfer or demobilization appears expedient in the general interests of the country and the Army Council are satisfied that it can be effected under conditions which will render the man transferred or demobilized immediately available for service in the case of military necessity.

10. *Amendment of the Army (Transfers) Act, 1915.*—The first proviso to Section 1 of the Army (Transfers) Act, 1915 (which provides for the maintenance of the rate of pay of a soldier transferred to a corps not of the same arm or branch of the service as the corps in which he was serving), shall not have effect except in cases in which the Army Council direct that that proviso shall apply.

11. *Transfer of Officers and Men of the Territorial Force.*—(1) During the present war, notwithstanding anything in Section 7 of the Territorial and Reserve Forces Act, 1907, the orders and regulations for the government and discipline of the Territorial Force made under that section—

(*a*) May authorize a man of the Territorial Force when belonging to one corps to be transferred without his consent to another corps, and may authorize a man of the Territorial Force to be posted without his consent to a battalion or other body of the regular forces included in the corps to which he belongs or is transferred; and

(*b*) In the case of an officer or man in the Territorial Force who is liable to service outside the United Kingdom may, for the purposes of such service and notwithstanding anything in any instrument defining the conditions of such service, authorize the drafting of any such officer or man to any unit of the Territorial Force within the corps to which he belongs or to which he may be transferred;

and those orders and regulations may also provide for the maintenance of the rate of pay of a man who is transferred without his consent to a different arm or branch of the service in cases in which it appears desirable to the Army Council that the rate of pay should be so maintained.

(2) This section shall affect officers or men of the Territorial Force notwithstanding that they were commissioned, enlisted, or re-engaged before the date of any order or regulation under this section.

12. *Power to Form Corps for More than One County.*—During the continuance of the present war Section 9 of the Territorial and Reserve Forces Act, 1907, shall be construed as authorizing corps to be formed for more than one county.

13. *Provision as to Liability of Territorials to Serve Outside the United Kingdom.*—Where an officer or man of the Territorial Force has, before or after the passing of this Act, accepted liability to serve in any place out of the United Kingdom, that liability shall continue, notwithstanding anything in the conditions of service, during the continuance of the present war, unless the competent military authority as defined for the purposes of Part II of the Army Act otherwise direct.

14. *Short Title.*—This Act may be cited as the Military Service Act, 1916 (Session 2), and the principal Act and this Act may be cited together as the Military Service Acts, 1916, and the Territorial and Reserve Forces Act, 1907, and this Act (so far as they relate to the Territorial Force) may be cited together as the Territorial Force Acts, 1907 and 1916.

The House has not made much progress with the bill; a discussion on the exclusion of Ireland occupied much time. Subsequently a number of amendments to the words in the first clause as to age were proposed. The first proposed to substitute for the specified ages (18 to 41) the expression "military age" and to leave the term military age to be defined from time to time by the King in Council. This was negatived without a division, and an amendment to lower the age to 17 in place of 18 was defeated by 213 to 52. An amendment to exempt a youth

who, being under the age of 19, has been certified by the War Office to be undergoing sufficient training for the purpose of becoming an officer in His Majesty's army, was withdrawn after Mr. Long had agreed that if necessary words should be added to the bill to meet the point. An amendment to provide that no man should be sent to serve abroad until he reached the age of 19 was rejected on a division by 134 to 46, after Mr. Long had recalled the assurance given on behalf of the Government that it was not the policy of the War Office to send men of this age abroad.

In a written reply, on May 9th, to a question by Mr. Perkins, Mr. Tennant said that Territorial officers and men of military age now serving at home who had not undertaken the imperial service obligation would come under the provisions of the bill.

War.

Soldier's Heart.—On May 4th Mr. J. M. Henderson asked whether a very large number of men of the Expeditionary Force were in hospitals suffering from what was called trench heart, but which was the result of excessive cigarette and tobacco smoking; and, whether, seeing that the number of cases was increasing, the matter would be inquired into with a view of remedying the evil. Mr. Tennant replied that a certain number of cases of disordered action of the heart, or so-called soldier's heart, were being investigated in a hospital specially set aside for the purpose. There was no evidence that the number of cases was increasing at present. By some observers this condition was attributed to excessive cigarette and tobacco smoking, and this was being looked into by skilled experts.

British Prisoners in Germany.—On May 8th Lord Robert Cecil said that the question of the separate publication of reports made by officers in the Royal Army Medical Corps who had returned from Germany would be considered. He agreed that the reports of men who had actually lived in the camps must be more reliable and important than those of a casual visitor. The Government Committee had been set up on purpose to consider all such reports and get a true account of the condition of the prisoners.

Medical Examination of Soldiers and Recruits.—In reply to Mr. Ashley, who asked whether all men were medically examined at the time they joined the second-line Territorial units to ascertain if they were fit for military service, Mr. Tennant said that all men were medically examined on enlistment, and also as soon as possible after joining their units. Supplementary questions showed that there was a belief that a large number of men quite unfit for military service were retained in the second-line units, and Mr. Tennant undertook to have another medical examination made if he was furnished with particulars of cases. In reply to Mr. Hogge, on May 8th, Mr. Tennant said that under the new bill it was not proposed to re-examine men who rightfully held a recognized certificate which showed that they were not fit for any form of military service. He could not say that Army Form B 2505 A would in all cases be accepted, because it was conceivable that a man might be fit for some form of military service, but not fit for general service.

Continued Treatment after Discharge from Hospital.—Major Hamilton has asked whether men found medically unfit after return from the front could be posted to the Army Reserve, or, in the case of Territorial units, demobilized, so that they could return to their home comforts for a few months while receiving massage or other medical attention by attending daily the nearest military hospital. Mr. Tennant, in a written answer, stated that from a medical point of view the proposal was not advisable. The men were much more likely to get fit to return to duty if, on discharge from hospital, they were treated in command dépôts, where they had the advantage of medical treatment and graduated exercises under proper control.

Army Dispensers.—In reply to Mr. Tyson Wilson, who asked a question as to the number of qualified chemists in the army whose services were not being used to the best advantage, Mr. Tennant said on May 3rd that all medical units at home and abroad were fully supplied with dispensers. He added that if any qualified chemists serving in combatant units made application to be transferred to the R.A.M.C., the case of each applicant would be considered as vacancies for employment arose.

Vaccination.—In reply to a question by Mr. Snowden as to men who had been refused leave because they objected to vaccination, and as to whether this "violation of the rights of the men" would be stopped, Mr. Tennant said that no officer or man had any right to leave. Leave was given to those whom the commanding officer considered deserved it. If a man refused to be vaccinated, which he was within his right in doing, it was within the discretion of the commanding officer to grant or withhold the privilege of leave.

Insanitary Dwellings.—On May 3rd Mr. W. Thorne asked the President of the Local Government Board (1) whether he was aware of the verdict of the jury at the Southwark Coroner's Court, at an inquest held on April 4th on Margaret Young, aged 53, who was living in the Tabard Street condemned insanitary area; if he was aware that the jury stated that in their opinion the house in which the deceased woman lived and died was in an insanitary condition and totally unfit for human habitation; if he would urge upon the responsible sanitary authority or authorities, without further delay, to take steps to close the premises in question; and (2) if his attention had been called to the inquest on Albert Martin, aged 9 years, at the Southwark Coroner's Court on April 11th, 1916, in which Dr. Spilsbury and the local medical practitioners stated that the infectious fever and lung disease which caused the boy's death was more than likely to spread if it got a footing in an overcrowded district such as the condemned Tabard Street area; if he was aware that the rooms condemned—small ones—were barely furnished and farmed out singly at a rental of 6s. per week; that the coroner stated that it entirely failed his comprehension how such hovels, not fit for a dog or a donkey, came to be re-let; and if he intended taking any action in the matter. Mr. Hayes Fisher, who answered, said that the coroner had supplied particulars to the President of the Local Government Board, who was in communication with the London County Council on the subject. It was the duty of every local authority, under Section 17 of the Housing, Town Planning, etc., Act, 1909, to make a closing order in respect of any dwelling house which was in a state so dangerous or injurious to health as to be unfit for human habitation, and the President had no doubt that steps which might be necessary in this direction would be put in hand by one or other of the local authorities concerned. A copy of the question and of the reply was being sent to the local authorities—namely, the Southwark Borough Council and the London County Council; but as, in the event of closing orders being made, there was an appeal to the Local Government Board, its President could not do more than this.

Royal Commission on Venereal Diseases.—On May 3rd the Prime Minister repeated the information given to the deputation from the National Council for Combating Venereal Diseases by the President of the Local Government Board to the effect that 75 per cent. of the cost of carrying out the recommendations of the Royal Commission as to diagnosis and treatment should be defrayed by a grant from the Exchequer. Mr. Asquith added that he could not at the moment promise legislation on the other recommendations of the Commissioners, some of which raised very controversial questions, but the whole matter was receiving the earnest attention of the President of the Local Government Board.

"Summer Time."—The resolution in favour of an alteration of clock time during the summer months was adopted on May 8th by an almost unanimous vote—Ayes 170, Noes 2. The resolution is: "That, in view especially of the economy in fuel and its transport that would be effected by shortening the hours of artificial lighting, this House would welcome a measure for the advancement of clock time by one hour during the summer months of this year." The Home Secretary said that, though the change could have been brought about by an Order in Council, since it was a war measure, it was thought desirable to ask the House to adopt a bill to make the change for the period of the war. The bill, entitled a bill "to provide for the local time in Great Britain and Ireland being in advance of Greenwich and Dublin mean time respectively during the summer months," was introduced on May 9th.

THE New York *Medical Record* states that operations for sterilization were performed recently on ten male inmates of the Wisconsin State Home for the Feeble-minded, Chippewa Falls. Their ages ranged from 15 to 30 years. These are the first operations of the kind done under the new Wisconsin law.

THE WAR.

MEDICAL ARRANGEMENTS OF THE BRITISH EXPEDITIONARY FORCE.

(From a Special Correspondent in Northern France.)

Tropical Diseases.

The great bulk of natives of India disappeared from France shortly before the publication of the King's farewell message to the Indian troops. They were never really as numerous as people thought. It was their dress that made them seemingly ubiquitous. It attracted attention to them wherever they went. No doubt was ever felt as to their fighting qualities, but there was a good deal of surmise in medical quarters as to how their new environment would affect them; also, when the first cold wet weather after their arrival began, there was among the general public a disposition to commiserate as well as admire them. It was assumed that they must be suffering much more than other troops.

As a matter of fact, a great many of the men who aroused these feelings were born and bred in hill districts of Upper India, where the winters are quite as cold and wet as even was the weather of 1914–15 over here. But of such saving clauses the sentimental soul takes no count. He thinks of a man of colour as of one to whom anything but warmth and sunshine must be both strange and unbearable. It must be admitted, too, that for ideas of this order a casual visitor to the Indian hospitals was likely to find some support on a cursory glance at the bed boards, but, according to I.M.S. officers of long experience, they were quite mistaken.

The troops from certain parts of India suffered very considerably from illnesses of a domestic order, such as mumps, but the total amount of sickness was held to be not at all greater than it would have been among the same troops had they been campaigning in India, and the mortality from disorders commonly associated with cold and wet was quite moderate. It was also pointed out that the chief wastage from disease was among men of the camp follower class and in certain regiments that had been brought up to full strength somewhat hurriedly. The more representative fighting troops of India had resisted the climatic conditions of Europe with great success.

Some I.M.S. officers, in fact, went so far as to prophesy that when percentage returns for all troops alike became available, it would be found that the figures for native regiments were better than those for the British troops which had formed part of the Indian contingent. The native troops, it was said, had, relatively speaking, been better clothed and better fed.

Be all this as it may, there was one account on which the departure of the native troops diminished anxieties. It lessened the probability of the outbreak of any disease of tropical origin among the troops as a whole. It did not end it, for there is always the chance of tropical disease being imported by white troops moved back from the East; as also the possibility of certain epizootic diseases communicable to man being introduced in packing cases and returned stores.

Meanwhile it is highly satisfactory to be able to say that so far the British forces as a whole have been practically free from any of the diseases commonly regarded as tropical in their origin. Considering that the anopheles mosquito is to be found in Flanders, and that there were sources from which it might become infected, it would not have been remarkable if there had been a good deal of malarial fever. But this was not the case. A definite diagnosis of malarial fever in men who had not lived in the tropics or subtropics was established in quite a small number of cases, and they were all of a benign type.

There were also reported from time to time a certain number of cases which were written down as dysentery, but clinically they appear to have been of a very mild type, and according to a pathologist who investigated a good many of them, they were almost all of bacillary origin. Of anything in the nature of an outbreak of amoebic or true tropical dysentery, the writer heard of only one example, and this was amongst French troops.

This happy condition of affairs last summer and autumn is not to be ascribed to good luck, but to the care that the medical authorities took to reduce the chances of disease importation to a minimum.

As soon as it was decided, in the autumn of 1914, to bring over Indian troops, the D.G.M.S. directed the medical officer in charge of the southern lines of communication to make arrangements for the careful examination of all Indian troops on their arrival, and to detain in isolation at various camps all men suspected to be suffering from disease of a communicable kind. The writer saw these arrangements in operation last spring (1915), and was much impressed by their completeness. The cases detained and isolated included a good many examples of recurrent fever and one or two of very early anaesthetic leprosy.

Scientific Meetings.

Meetings of medical men for the purpose of discussing subjects of professional interest have long since ceased to be uncommon occurrences in the war zone in France, but are not always of identical type. Most of them are the outcome of the formation of regular medical societies, but a good many are invitation meetings organized by the officers of some particular hospital.

There is also considerable difference in the method of procedure. At some the proceedings are on all-fours with those of ordinary medical societies at home, a discussion being initiated by the reading of a formal paper. At others the aim is usually of quite a different character; it is not to promote a contrasting of views and theories, but to elicit an interchange of observations in regard to some problem considered to be more or less new to all present. Consequently the reading of formal papers is not encouraged, and the experiences recorded are impersonal; they are supposed to be those of the institutions to which the speakers belong rather than of the speakers themselves.

This latter system was introduced by the officers of the Australian Hospital, who at the meetings that they periodically organize take great pains to secure the presence of representatives of all classes of medical units likely to have acquired any knowledge of the matter under consideration. The object, of course, is to get light thrown upon it from as many points of view as possible. Both plans have their advantages.

Of the three or four formally organized societies, pride of place in respect of seniority belongs to the medical society which was formed about the end of 1914, while the youngest is that known as "The Third Corps Medical Society." The latter started work about a year ago, and it so happens that both owe their existence to the energies of the same officer.

Nearly all those who take part in the work of the Third Corps Medical Society are either battalion medical officers or members of the staffs of field ambulances, and it holds its meetings in a building situated at a spot within three miles or so of the fire trenches. This place was chosen because the connecting roads happen to render it easily accessible to formations serving a comparatively wide section of the front.

The subjects so far discussed have been the treatment of abdominal wounds; gas attacks and smoke helmets; trench feet; the sanitary arrangements of front line units; pediculosis and baths; cerebro-spinal meningitis; and the treatment of wounds suitable for work in the trenches, at regimental aid posts, and at field ambulance dressing stations.

It is to be hoped that this society will not long remain the youngest of the group, for a front line medical society which holds its meetings at an accessible spot and leads an active existence is bound to be of much utility, as from a professional point of view front line officers lead a somewhat isolated existence, and have few opportunities of hearing what their fellows are doing in regard to the problems by which they all alike are faced.

CASUALTIES IN THE MEDICAL SERVICES.

Army.

Died on Service.

Major Frank Charles Pereira, Madras Medical Service, died in the General Hospital, Madras, on April 9th, aged 53. He was born on April 28th, 1862, took the Scottish triple qualification in 1886, and entered the Indian Medical Service as surgeon on March 31st, 1888, becoming

major on March 31st, 1900, and lieutenant-colonel on March 31st, 1908. He had been for many years in civil employment in the Madras Presidency, but at the beginning of the war reverted to military duty, and was recently stationed at Quetta, whence he returned sick to Madras two months before his death. He served on the north-east frontier of India in the Lushai campaign of 1889, receiving the medal with a clasp.

Captain Robert Donald, R.A.M.C.(T.F.), died at his residence in Chelsea, on May 3rd, aged 55. He was educated at the University of Glasgow and at Anderson's College, Glasgow, and took the Scottish triple qualification in 1884. After filling the post of medical officer of health of Unst, he settled in practice in Chelsea, where he was medical officer to the Royal Engineers and War Office employees. He joined the 1st City of London Brigade, Royal Field Artillery, as lieutenant and medical officer on July 28th, 1911, becoming captain on January 27th, 1915.

Assistant Surgeon Edmund Carey Hallums, Indian Subordinate Medical Department, reported to have died on active service abroad, was born on September 22nd, 1892, and became fourth class assistant surgeon on November 21st, 1913. Prior to the war he was stationed at Ranikhet.

Killed in Action.

Lieutenant A. Booth, R.A.M.C., was reported as killed in action in the casualty list published on May 8th. He took the degrees of M.B., B.Ch.Oxon. in 1912, obtained a temporary commission on November 15th, 1915, and was attached to the King's Own Scottish Borderers.

Wounded.

Major P. Sampson, D.S.O., R.A.M.C.

Captain G. F. Denning, R.A.M.C.(T.F.), (Dublin).

Captain J. T. McCullagh, R.A.M.C., temporary (Dublin). (This name was at first erroneously given as Captain W. McK. H. McCullagh.)

Captain R. W. Murphy, R.A.M.C., temporary.

Captain H. G. Wilson, R.A.M.C., temporary.

Lieutenant N. C. Kapur, I.M.S.

Lieutenant A. Massy, R.A.M.C., temporary.

Lieutenant H. L. Mooney, R.A.M.C., Special Reserve (Dublin).

Assistant Surgeon E. H. L. Shaw, I.S.M.D.

Missing.

Lieutenant J. Brown, R.A.M.C., temporary.

DEATH OF SON OF MEDICAL MAN.

Cyril Niccoll Searancke, Lieutenant R.N., second son of Dr. N. F. Niccoll Searancke, of Mitcheldean, Gloucestershire, killed in the loss of H.M.S. *Russell*, on April 27th, aged 28.

NOTES.

FROM recent reports about the Liverpool Merchants' Mobile Hospital it would appear that it is doing most excellent work. The Liverpool Exchange Newsroom subscriptions now exceed £700, and letters appear from time to time in the local press from soldiers testifying to the benefits they have derived through the munificence of the Liverpool merchants.

HONOURS.

A supplement to the *London Gazette*, dated May 5th, 1916, gives the names of a number of officers as mentioned for good service in the Gallipoli peninsula, supplementary to Sir Ian Hamilton's dispatch of December 11th. Among them are a large number of medical officers, whose names were given in the BRITISH MEDICAL JOURNAL of May 6th, as the recipients of various decorations.

BRIGHTON HOSPITAL FOR PATIENTS WHO HAVE LOST LIMBS.

Lieutenant-Colonel J. N. MacLeod, C.I.E., I.M.S., writes: In your note in the issue of May 6th on "The Brighton Hospital for patients who have lost their limbs," your statement as to the command of the late hospital for Indians in the same building is incorrect. I was in command of the general hospital for wounded Indian soldiers in the Dome and Pavilion, Brighton. The officer you mentioned was S.M.O. for the combined hospitals at the York Place School and the Pavilion.

THE GERMAN ARMY MEDICAL SERVICES.

The Deutsche Gesellschaft für Chirurgie held its annual meeting in 1915 in Brussels. We gather from a recent note in the *Times* that it has met this year in Warsaw, and that, as was the case last year, the opening address was given by Professor v. Schjerning, the head of the German Army Medical Service. According to our contemporary, he stated that 24,000 doctors were in the service of the army—three-quarters of them in the field and one-quarter at home. There were 3,000 doctors working with the Red Cross, 400 dentists, 1,800 chemists, and 92,000 men in the medical services. The voluntary nursing service employed 72,000 persons in Germany and 22,000 on the lines of communication. There were 238 hospital trains taking wounded and sick back to Germany from the hospitals near the front. There were 26 large steam laundries on the lines of communication, and on the frontier there were 18 large disinfection establishments, dealing with 100,000 men a day.

Ireland.

MEDICAL WORK IN DUBLIN DURING THE REBELLION.

THE Sinn Fein rebellion has come to an end after a week of horror in Dublin, leaving all the city hospitals filled with seriously wounded cases, both military and civilian. Altogether about 180 were brought to the hospitals either dead or dying, and this number would have been greater only that after the first few days many of the hospitals had to refuse to allow any further number of dead to be brought, as they had no room for them.

In answer to a question on May 9th the Prime Minister gave the following statistics of the casualties sustained by the troops, the Royal Irish Constabulary, and other forces during the outbreak:

	Killed.	Wounded.	Missing.	Total.
Army officers	17	46	—	63
Other ranks	86	311	9	406
Royal Irish Constabulary ...	12	23	—	35
Dublin Metropolitan Police ...	3	3	—	6
Royal Navy	1	2	—	3
Loyal Volunteers	5	3	—	8
Total	124	388	9	521

There is no means of estimating how many of the Sinn Feiners were wounded or killed as very few of them were brought to the hospitals, and many must have met their death in the parts of the city that were burnt. The number of civilians reported as dead in the hospitals is 160, and it is probable that a certain proportion of these were Sinn Feiners, but there is no doubt that a large number of harmless civilians were both wounded and killed during the firing that took place in the streets. Many were hit through their own fault because they ventured into dangerous areas, but a certain number were undoubtedly injured while following their ordinary business.

Some of the first casualties which occurred on Easter Monday were brought to the Royal City of Dublin Hospital; and on Wednesday afternoon, when the serious fighting took place close to the hospital between the military who were arriving from Kingstown and the rebels, 68 cases were admitted to the hospital between 4 and 10 p.m. These were nearly all soldiers who were wounded or killed within one or two hundred yards of the hospital; later on during the same evening the scene of fighting shifted nearer the city, and the cases were brought into Sir Patrick Dun's Hospital, chiefly by the nurses, who several times went out under fire to bring in the wounded. The Richmond Hospital was seized by the rebels on Easter Monday, and three of the visiting staff who were in the hospital at the time had to remain for the whole week; the rebels brought their wounded to this hospital to be dressed and then removed them to the Four Courts, which they had partly converted into a hospital for themselves. The Red Cross and St. John Ambulance did splendid work, and organized in a few hours temporary hospitals in Merrion Square and the neighbourhood, where many cases were treated; in this way overcrowding of the general hospitals was prevented. Jervis Street Hospital, which was in the worst area, close to the Post Office, treated about 400 cases during the week, but many of these were of a minor character, over 80 being cases of looters who had received cuts from broken glass.

Owing to the fact that the wounded were in most cases brought to the hospitals within a very short time of being

wounded—often within half an hour or less—the results obtained were remarkably good, and undoubtedly many cases were saved which would have died had the circumstances been other. For instance, a man was brought into the Royal City of Dublin Hospital on Tuesday morning (April 25th), within half an hour of being shot in the back; the bullet had emerged under the right costal margin. He was immediately taken to the theatre and the abdomen opened; the right robe of the liver was so extensively torn that it was impossible to suture it, but by packing both the torn cavity and all around the haemorrhage was checked, and the patient is now recovering. A few other abdominal cases were operated on, but so far as can be learnt without success, as in every case the damage done was extensive, the wounds being transverse or caused by soft-nosed bullets or ricochets.

The ammunition used by the rebels was of all kinds, from the modern nickel-covered rifle bullets to large soft lead bullets with the point cut off, and even 12-bore cartridges filled with buck-shot and slugs. Some of the wounds inflicted on the military were in consequence very severe, specially those traversing the chest and head. At the Royal City of Dublin Hospital all the cases were washed with eusol, and extensive wounds were left open and packed with gauze wet with eusol, the surrounding skin being in all cases painted with tincture of iodine. This treatment appears to have been most successful, even the most extensive wounds in nearly all cases healing without severe sepsis.

The following communiqué was issued by General Sir John Maxwell on May 7th:

I desire to express my sincere appreciation of the services rendered during the recent disturbances in Dublin by the medical, surgical, and nursing staffs of many of the city hospitals, and in particular of the gallantry shown by those nurses who exposed themselves to a heavy fire in attending to and removing the wounded.

Also to the members of the Red Cross and St. John Ambulance Societies and the many medical men and private individuals who gave assistance in attending to the wounded, or placed their houses at the disposal of the military for use as dressing stations. In numerous instances these services were rendered at considerable personal risk, and under circumstances reflecting the greatest credit on those engaged in them.

J. G. MAXWELL,
General Commanding-in-Chief the Forces in Ireland.

Scotland.

TWENTY-FOUR new students have joined the Edinburgh School of Medicine for Women this summer; the number of women now attending the school is about 167 (entries not complete). At Queen Margaret College, Glasgow, the number of new women students in medicine is 20, compared with 10 a year ago. This brings the total number of women students in the medical faculty up to 207.

At a public meeting in Bothwell on May 3rd it was resolved to raise a fund of £1,000, with the object of erecting a suitable memorial to the late Dr. W. G. Macpherson, whose death from pneumonia on March 31st was recorded in the JOURNAL of April 15th. Dr. Macpherson's sterling qualities as a man and as a physician had earned him a large circle of friends and patients in the Lower Ward of Lanarkshire. He was active also in work for the profession; he was a loyal member of the British Medical Association, and at the time of his death a member of its Scottish Committee.

ANNUAL MEETING OF THE EDINBURGH ROYAL MATERNITY HOSPITAL.

Dr. Freeland Barbour, President of the Royal College of Physicians of Edinburgh, who presided over a large gathering of the directors, staff, and supporters of the Edinburgh Royal Maternity Hospital on May 8th, 1916, referred to the loss the hospital and the community had sustained in the death of Sir Alexander Simpson, and spoke of the great work which during thirty-five years Sir Alexander had achieved in and for the hospital. He congratulated the directors on the fact that the number of in-patients during the year 1915 was the highest on record, and mentioned also that the number of undergraduates and of nurses trained in connexion with the institution had both increased, from 51 (1914) to 87 (1915) in the case of the former, and from 53 (1914) to 61 (1915) in the case of the latter. The finances of the hospital were also satisfactory, and a small addition had been made to the reserve fund. He alluded with satisfaction to the establishment of a Central Midwives Board for Scotland, with Sir Halliday Croom, one of the hospital staff, as its chairman, and to the further development of the prematernity work, a department in which the hospital had led the way, and to which another member of the staff (Dr. Ballantyne) had greatly contributed. The chairman then moved the adoption of the annual report. The motion was seconded by Mrs. Leslie Mackenzie, who strongly advocated the necessity for caring for the health of the school child, not only when at school, but during the pre-school age, and also before birth through the mothers. The Rev. Norman Maclean, in moving a vote of thanks to the directors, medical staff, and Ladies' Committee, took occasion to name several of the greatest men the world had ever seen who all might well (if they came into life at this time) have been born in a maternity hospital. Sir Ludovic Grant moved a vote of thanks to the chairman.

England and Wales.

LANCASHIRE HEALTH REPORT.

THE report of the medical officer of health for the administrative county of Lancashire for the quarter ending March 31st shows that the death-rate corresponded to 13.2 per 1,000 of the estimated population, which was 1,666,488. The principal epidemic diseases, excluding diarrhoea, caused 264 deaths, or a rate of 0.63 per 1,000, as against 1.06 in the same quarter last year. From small-pox there were two deaths out of 14 cases notified. The only other noteworthy figures are 68 deaths from whooping-cough, as compared with 104, and 60 deaths from measles, as compared with 224 in the March quarter last year. There was also a considerable drop in the death-rate from bronchitis and pneumonia. The 14 small-pox cases were spread over seven districts, mostly in the south-east part of the county, not far from Manchester. The whole of the cases were isolated, and as a measure of precaution a very large number of vaccinations have been done. The number of notifications of tuberculosis rose in the same periods from 797 to 1,026. The figures for whooping-cough and measles fully bear out the statement of the medical officer of health for Manchester that for the moment whooping-cough, which is not notifiable, is a worse form of illness than measles. In Manchester, for the eight weeks ending April 29th, there were 102 deaths recorded from whooping-cough, as compared with 11 in the corresponding period in 1915, while there were 37 deaths from measles this year, as against 163 last year, during the same eight weeks. The number of cases of measles notified is very large, and about one-sixth of them are German measles. The isolation of measles, which is now insisted on, cannot, it is believed, fail to lessen the spread of the disease, which last year had a free course, as children were often to be seen in public conveyances or playing in the streets while covered with the rash.

The report on the working of the Midwives Act in Lancashire shows that there were 920 midwives on the roll, of whom the large number of 487 were only on the roll by virtue of having been in bona fide practice before the Act came into operation. During the quarter there were 644 records of midwives having sent for medical aid, of which 151 were for the newly-born, and 493 for the mothers. The number of cases of puerperal fever which came under notice was 28, with 8 deaths. Only 12 of these were notified by midwives, though 16 of the confinements appear to have been attended by midwives alone, 6 by doctors alone, and 6 by midwives acting under doctors. In 7 cases charges were made against midwives of negligence or misconduct in connexion with cases of puerperal fever, and a number of other charges were dealt with of failure to summon medical aid when the rules required it. During the quarter there were 95 cases of ophthalmia neonatorum reported, and investigation showed that in 13 cases midwives had failed to comply with the requirements in these cases.

INSPECTION OF SCHOOL CHILDREN.

The annual report of the school medical officer for Bootle, Dr. W. A. Daley, contains information showing the benefits derived from medical inspection. The cost of this for a period of twelve months was 11.7d. a child. The number of new cases inspected in 1915 was 1,109, compared with 900 in 1914. The number of children in the schools with some physical defect reached the high percentage of 81.2; 8.6 per cent. were ill nourished, 23.7 suffered from enlarged tonsils, 37.4 per cent. showed four or more carious teeth, and 17.86 per cent. suffered from defective vision. All these percentages were higher than in the previous year. The nutrition of 7.11 per cent. was excellent, and 84.3 per cent. was normal; 7.48 per cent. of the children were recorded as dirty. Systematic examination of the heads of the girls was made by the school nurses, and of 5,531 inspected 1,103 were found to have very dirty heads. It was sufficient to draw the attention of the parents in 714 cases for the neglect to be remedied. In the remaining 389 improvement seemed extremely difficult to obtain. Dr. Daley draws attention to the fact that as lice are regarded as typhus carriers and typhus fever is not unknown in the vicinity, care should be given to this condition and every endeavour made to keep the children from becoming verminous. A beginning has been made to improve the condition of the children's teeth, and a dental surgeon was appointed in October last. Of 202 children examined during the last three months of the year, only 15 per cent. had all the teeth sound.

DOMESTIC DESTRUCTION OF REFUSE.

Dr. T. W. N. Barlow, medical officer of health for Wallasey, in his report to the Health Committee, urges the importance of householders burning their refuse, in view of the fact that the sanitary service is being depleted owing to the demands of the military authorities. He foresees that the weekly collection of house refuse will perforce become a fortnightly, and later on a three-weekly, collection. Dr. Barlow says: "If it could be rendered certain that all the refuse collected from houses was innocuous—that is, burnt refuse—it could not only easily be dumped on waste ground without offence as the clinker now is, but no nuisance would arise at individual houses even if the corporation were unable to collect it for a month." He is also of the opinion that the fly pest and its concomitant dangers would be mitigated, if not avoided, by the householder carrying out this suggestion, which indeed ought to be done in normal times for his own and the public welfare.

Canada.

TWO MCGILL V.C.'S.

On Tuesday afternoon, April 25th, enlarged photographs were unveiled in the McGill Union of the two McGill men who have won the Victoria Cross. One of them, Captain F. A. C. Scrimger, M.D., a member of the teaching staff of the medical college and a graduate of the university, accompanied the 14th Battalion as its medical officer, which battalion formed part of the first Canadian contingent. The following is the official report of the deed which won for Captain Scrimger the coveted honour of the Victoria Cross:

> On the afternoon of April 25th, 1915, in the neighbourhood of Ypres, when in charge of an advanced dressing station in some farm buildings, which were being heavily shelled by the enemy, he directed, under heavy fire, the removal of the wounded, and he himself carried a severely wounded officer out of a stable in search of a place of greater safety. When he was unable alone to carry this officer further, he remained with him under fire till help could be obtained. During the very heavy fighting between April 22nd and 25th Captain Scrimger displayed continuously day and night the greatest devotion to his duty among the wounded at the front.

Captain Scrimger is the son of the late Reverend John Scrimger, D.D., Principal of the Presbyterian College, Montreal. Fortunately Dr. Scrimger lived long enough to learn of the heroism of his son. Two days previously, on April 23rd, 1915, another McGill man, the late Lance-Corporal Fred Fisher, of the 13th Battalion, who did not live to know of the honour bestowed upon him, gained the Victoria Cross under the following circumstances:

> On April 23rd, 1915, in the neighbourhood of St. Julien, he went forward with the machine gun, of which he was in charge, under heavy fire, and most gallantly assisted in covering the retreat of a battery, losing four men of his gun team. Later, after obtaining four more men, he went onward again to the firing line, and was himself killed while bringing his machine gun into action under very heavy fire in order to cover the advance of supports.

The photographs, both of which are excellent likenesses, were unveiled by Sir William Peterson, the principal of the university, who proudly referred to the fact that between 1,400 and 1,500 names are now on the honour roll of the university. "I know," he said, "of no greater proof of the righteousness of this war than the fact that in our somewhat disjointed empire there was not a single constituent part that hesitated for twenty-four hours as to whether she should take the place that she might rightfully claim by the side of the British forces."

CANADIAN CASUALTIES.

Sir Robert Borden, on March 31st, informed the House of Commons that since the commencement of the war the casualties in the Canadian forces had amounted to 22,000. Wastage, apart from casualties, had amounted to 21,700. Enlistment of all ranks had amounted to a total of 290,000, the effective fighting force being therefore 247,000, of which 112,000 were then overseas and 135,000 in Canada. The total expenditure by Canada for war purposes up to the end of February had been $187,000,000.

Correspondence.

THE INTERNAL USE OF POTASSIUM CHLORATE.

SIR,—The great value of the internal use of potassium chlorate in bad cases of follicular tonsillitis in children and young adults, and in ulcerative stomatitis of children, needs no confirmation, one would suppose, but for many years there has been a profound mistrust and even fear of the internal use of this drug on the Continent. For instance, half a gram (7½ grains) for a child of 5 years suffering from bad follicular tonsillitis may be regarded by some young doctors as a high, if not a dangerous, dose, though it is well within the ordinary limits. According to Tappeiner's *Lehrbuch der Arzneimittellehre*, grave toxic symptoms may be produced by 2 to 3 grams in children, and by 8 to 10 grams in adults, the toxic action being favoured by concentration of the solution, emptiness of the stomach, and diminished excretion owing to renal disease; the toxic action is likely to commence when the potassium chlorate is present in the blood to the amount of over 0.025 per cent. In Hutchison and Collier's *Index of Treatment* (first edition) it is, as everywhere else, recommended for ulcerative stomatitis in children, "a child of 4 or 5 years taking as much as 25 grains daily in divided doses."

I would ask, then, What are the grounds, if any, for the extreme mistrust of the internal use of the drug which has developed, at all events at some centres of teaching, on the Continent? One of the reasons is possibly the belief that the curative action may be obtained equally well by the local external use of the drug in the form of a mouth-wash or gargle. But I am convinced that the efficacy of the drug depends partly on its excretion from the circulating blood into the mouth. Gargles and mouth-washes may, of course, on account of the likelihood of their being swallowed, be more risky in the case of young children than the internal use of the drug in prescribed doses. Before Behring's discovery of diphtheria antitoxin potassium chlorate was much used internally in cases of diphtheria, and its supersession in diphtheria may have contributed to its relative neglect on the Continent in follicular tonsillitis.

The main purpose, however, of this letter is, if possible, to obtain information as to whether severe toxic results have really been known to follow moderate doses of the drug. I have heard much of the dangers of the drug from young Continental doctors, but in England I have never observed or heard of untoward effects of moderate doses in cases of ulcerative stomatitis in children or in cases of follicular tonsillitis, even when the latter disease has been associated with considerable fever and slight temporary albuminuria.—I am, etc.,

London, W., April 29th. F. PARKES WEBER.

THE INGUINAL INCISION FOR INTRASCROTAL AFFECTIONS.

SIR,—Arising out of Mr. Maylard's memorandum (April 22nd, p. 589) I have to say that the inguinal incision for intrascrotal affections is one I have practised for at least twenty-four years with convenience and advantage. In this I agree with him, as no doubt do many others. Perhaps in adopting this practice we did not always bear in mind the analogy of scrotal hernia, which in herniotomy is operated on through an inguinal incision.

I do not think that the elaborate attempts to disinfect the scrotal skin which many of us made in the days when we applied irritating antiseptics to the skin, and even wound, are any longer required, now that we avoid irritating the wound, with the increased primary discharge of blood and serum and the consequent encouragement of decomposition, set up by such irritation. But whether operating through the groin, or the scrotum itself as we have to when the latter is ulcerated, I have not found real difficulty in keeping the wound aseptic when the dressings cover and support the genitals, leaving the penis protruding through them. I well remember in those days, especially when mercuric chloride was the disinfectant used and also applied to wet the dressings, the abundant collection of epidermis and exudation with their pungent odour, even when the wound remained sterile. A single disinfection with iodine solution, or with carbolic lotion 1 in 20, as advised by Lister, during the anaesthetic process, and the use of dry cyanide or plain gauze at the dressing, with the greatly lessened discharge, leaves the scrotum harmless, even if not thoroughly disinfected. —I am, etc.,

RUSHTON PARKER,
Professor of Surgery in the University of Liverpool;
Lieutenant-Colonel 1st Western General Hospital, R.A.M.C.(T.F.).

Liverpool, April 30th.

JEJUNOSTOMY AND JEJUNO-COLOSTOMY.

SIR,—Dr. Victor Bonney is much to be congratulated on bringing forward a new method offering an improved prospect of successful treatment for the very dangerous cases in which persistent symptoms resembling those of intestinal obstruction follow an abdominal operation. He has a friendly difference of opinion with his colleague, Mr. Sampson Handley, as to the cause of the conditions discussed, and I should like to be allowed to add a third view. Handley, as I understand him, attributes the symptoms to peritonitis. Bonney says: "It is to changes occurring inside the bowel that the symptomatology must be ascribed." As long ago as 1887 I argued that the symptoms in these cases are due to a weakening of peristaltic action caused by manipulation and exposure of the bowel, but since reading Professor Arthur Keith's most instructive Cavendish lecture,[1] it seems to me that a temporary lack of co-ordination between the different parts of the intestine is also an important cause.

In 1914 I recorded certain cases in which deaths which appeared inevitable were prevented by draining the caecum or the small intestine, nothing more being required to effect a cure except the closing of the fistula. In these cases there was certainly no true obstruction and no true paralysis of the bowel, and I claimed that the histories proved that only a short rest of the intestine was required.

In his paper in the JOURNAL of April 8th Handley dates his interest in these cases back ten years, and I am disappointed that in the four previous years, when we worked together at the Samaritan Free Hospital, I failed to give his views a slightly different bent. In my first paper on this subject it was stated that "a general peritonitis—in the absence of septic influences—is one of the rarest complications of operations involving division of the peritoneum," and that few patients die from these operations without signs of diffuse peritonitis being found at the autopsies. This peritonitis was at that time supposed to be the cause of death, but I showed that there was no sign of peritonitis during an interval after distension and vomiting were well developed, but before the patient was moribund. Handley urges anew that general peritonitis found after death is not necessarily a confirmation of a diagnosis of general peritonitis during life, but he does not carry his argument to the conclusion that the distension of the intestine is the cause of the spreading of the peritonitis, and yet he is careful to reduce distension in treating these cases. He cannot prevent the spreading of the peritonitis unless he avoids or relieves intestinal distension, and when this distension is relieved the peritonitis is harmless or requires peritoneal drainage

Bonney's cases, like my own above mentioned, seem to offer an absolute proof that only drainage of the intestine and a short rest for the bowel are necessary to effect a cure. He attributes the deaths, when death occurs, to absorption of poisonous fluids. On the other hand, one of Handley's points is to save this fluid for the body as much as possible. In 1893 I recorded[2] that in certain cases after the abdomen was very large, and vomiting of black foul-smelling fluid was copious, so that death seemed unavoidable, a sudden relief occurred, apparently from a shifting of some plug of faeces in the colon. These cases were first observed when opium was given in full doses for a week after every abdominal section, and the improvement was not accompanied by an action of the bowels. Only gases escaped, but the distension quickly passed off, vomiting immediately ceased, and the general condition rapidly improved. A large quantity of intestinal fluid must have been absorbed when this improvement was taking place, whereas when the fluid was being thrown out freely the patient's condition was rapidly deteriorating. This evidence seems to show that the fluid is not so very septic, and Bonney on April 22nd wrote of its escape from a jejunal fistula that "although the fluid must be highly infective it does not seem to affect the wound to a marked degree."

It seems to me that in these cases death is due to heart failure and starvation. The distension of the intestines and of the abdomen offers an increasing opposition to the blood flow, and the heart is further hampered by direct pressure, whilst enormous quantities of fluid are lost to the body, and the provision of fresh nourishment in adequate amount is impossible. Nevertheless, until the patient is almost moribund relief of the distension may effect a rapid cure.

I agree with Bonney that the urgent necessity in these cases is drainage of the intestine, and the point that attracts me in his paper is not specially emphasized by him nor even definitely mentioned. I refer to the proof that we can drain the small intestine upwards. It is obvious that the small intestine very easily discharges its contents into the stomach if their passage down the bowel is interfered with; but I did not know until now that the passage upwards through the duodenum, stomach, and oesophagus offers a sufficient obstruction to bring about the immense abdominal distension which occurs in the cases under consideration. I have hitherto endeavoured in these cases to open the intestine high enough to drain its healthy part, but otherwise as low as possible. If, however, it can be drained upwards, we can always with certainty relieve intestinal distension, and Bonney assures us that for some little time the patient need not die of starvation. His plan appeals to me strongly, and I shall try it on the first suitable opportunity. Nevertheless these difficulties should be avoided if possible, and I have now on a considerable number of occasions opened the caecum when I anticipated danger from retention of gases. This has been followed often by the most uninterrupted recovery, so that the procedure appeared quite unnecessary, but it does not follow that my fears would have been groundless if the fistula had not been made.—I am, etc.,

London, W., May 8th. JOHN D. MALCOLM.

TYPHUS FEVER.

SIR,—In the excellent review of Dr. Jeanneret-Minkine's monograph on typhus, published in your issue of April 29th, one sentence needs qualification. Speaking of the author's views on prognosis, your reviewer says: "It (prognosis) is better among the well-to-do and the courageous than among the poor and depressed." Dr. Jeanneret-Minkine indeed cites certain statistics of Curschmann which show a higher fatality rate among the poor than among the rich, but he explicitly calls attention (p. 90) to the enormous fatality seen among medical men, and implies that the rate was also above the average in the case of the prosperous classes of Serbia, a circumstance which he attributes to intestinal

[1] *West London Medical Journal*, 1915, p. 145.

[2] *The Physiology of Death from Traumatic Fever*, p. 81.

auto-intoxication consequent upon an almost exclusive meat diet.

The high fatality of epidemic typhus among the more prosperous classes has been commented on by numerous writers, especially Graves (*Clinical Medicine*, pp. 59–60) and Creighton (*History of Epidemics in Britain*, vol. ii, p. 100 et seq., and especially pp. 290–1). Jeanneret-Minkine's observations fall into line with those of earlier writers. Davy and Brown's figures (BRITISH MEDICAL JOURNAL, November 20th, 1915) are consistent with the fatality-rate upon the medical officers being above the general average, but the absolute numbers are small.

The point is of both theoretical and practical interest, which is my excuse for calling attention to it.—I am, etc.,

M. GREENWOOD, Jun.,
Captain 1st London (City of London) Sanitary Co.

Loughton, May 2nd.

THE "SOLDIER'S HEART" AND ITS RELATION TO THYROIDISM.

SIR,—I do not think that Dr. Harry Campbell is quite correct in his supposition that Sir James Barr is the first to draw attention to the hormonic origin of the symptoms of "soldier's heart."

Some months ago, in the *Lancet*, January 8th, 1916, Dr. Hernaman-Johnson and Dr. Percival White pointed out the fact that "soldier's heart" is really due to Graves's disease, and therefore can be cured by *x*-ray treatment. At the discussion on "irritable heart" at the Royal Society of Medicine on January 18th, 1916 (reported in the February *Proceedings of the Royal Society of Medicine*), I brought forward the same view, but got no support from the meeting. In the *Lancet* of April 8th I again urged the same fact, and quoted cases cured by *x* rays to prove the contention.

That the thyroid is not primary in Graves's disease, but that toxic influences play a large part in causing thyro degeneration, few will deny.

Sir James Barr's paper is very valuable as again pressing this connexion. His method of treatment is considerably less laborious than *x*-ray treatment, which latter, however, gives very satisfactory results.—I am, etc.

FLORENCE A. STONEY, M.D., B.S.Lond.

London, W., May 1st.

INFANTILE MORTALITY.

SIR,—When Dr. S. G. Moore said in his Milroy Lectures that there was nothing to prevent the continuance in the decline of the birth-rate, he surely did not mean that it would continue declining until it equalled the death-rate. He must know that the birth-rate of Australia and New Zealand ceased falling some ten or more years ago, and that ours may be expected to do the same when serious poverty has been eliminated. The scheme which he favours of public assistance to necessitous mothers and infants will merely ensure that the further decline of our birth-rate will be mainly among the people with over 30s. a week.—I am, etc.,

London, S.W., May 8th. BINNIE DUNLOP, M.B., Ch.B.

IN an address delivered at the second scientific Pan-American Congress at Washington on January 7th, Mr. Frederick L. Hoffman stated that the estimated annual mortality from cancer in the continental United States is 80,000 (32,000 males, 48,000 females). Excluding cases of disease of the generative organs and the breast, the rates for the two sexes in the registration area of the United States, are about the same. The rate is somewhat higher in urban than in rural centres, the difference being partly accounted for by deaths in institutions. The death-rate in thirty southern cities was 80.3 per 100,000 of population among whites and 55.2 among the coloured. There has been a considerable increase in the negro rate since the Civil War, particularly in cancer of the uterus. A comparison of the cancer mortality rates in the eastern and western hemispheres seems to show a decrease in prevalence corresponding with diminishing distance from the equator. For the eastern hemisphere the rate was 98.3 and for the western 78 per 100,000 of population. There would seem to be a very close relation between the frequency of cancer and the degree of civilization. The disease was extremely rare among the North American Indians, the Eskimos, and West Indian negroes.

Universities and Colleges.

UNIVERSITY OF CAMBRIDGE.

THE following candidates have been approved at the examination indicated:

SECOND M.B. (*Part II, Pharmacology and General Pathology*).—B. F. Armitage, H. Barbash, P. F. Bishop, C. V. Braimbridge, E. P. Brockman, G. E. Burton, T. A. Butcher, S. P. Castell, C. B. Cohen, A. J. Copeland, E. C. Curwen, J. C. Davies, C. C. R. Downing, G. A. Fisher, W. S. Gross, A. C. Halliwell, J. C. N. Harris, A. T. Hawley, W. M. Heald, T. L. Hillier, S. C. Ho, P. C. Livingston, A. G. F. McArthur, E. G. D. Murray, P. M. Neighbour, J. W. McK. Nicholl, F. C. Odling, R. A. Olphert, F. P. N. Parsons, R. H. Reece, R. H. O. B. Robinson, N. Rumboll, E. D. Spackman, H. F. Squire, W. S. Sykes, M. S. Thomson, G. H. Ward, J. P. Wells, R. L. Williams, D. W. Winnicott, J. M. McC. Wright.

UNIVERSITY OF EDINBURGH.

GENERAL COUNCIL.

AT the statutory half-yearly meeting of the General Council, on May 3rd, resolutions were adopted recording the Council's appreciation of the services of late Principal Sir William Turner, Emeritus Professor Sir Alexander R. Simpson, Emeritus Professor John Wyllie, Dr. Allan Jamieson, and Professor Hardie.

The draft ordinance for the Degree in Education, which will be one of the most comprehensive in any English-speaking university, was approved.

The report of the Finance Committee showed that the total of matriculated students for the year 1914–15 was 2,417 (1,941 men, 476 women). There had been a marked decrease both of men and women in all the faculties except that of science, where there were eight more women than in the previous year. There was an increased deficit in the General University Fund, the deficiency now amounting to £12,814—a fact which showed the need for unappropriated donations. The increase in bursary funds ought not to be allowed to distract attention from this urgent and more general need.

A motion to provide that all future appointments of principals and professors should terminate either at a definite age limit or after a definite period of office, was adopted, with the addition of the words "unless the university shall request such principal or professors to continue in office thereafter for a further period."

The name of Mrs. A. B. Lothian (*née* Maccallum), M.B., Ch.B., D.P.H., was added to the Business Committee.

ROYAL COLLEGE OF PHYSICIANS OF EDINBURGH.

AT its quarterly meeting, on May 2nd, the Royal College of Physicians of Edinburgh resolved to offer its diploma of membership to Major Harold Edgar Priestley, Captain Alan Cunliffe Vidal, and Captain James Lafayette Lauder in appreciation of their conduct as physicians at Wittenberg.

Obituary.

JAMES BROWN BIRD, M.D.EDIN.,

PHYSICIAN, CUMBERLAND INFIRMARY.

DR. J. B. BIRD, of Carlisle, died of influenza on April 22nd at the early age of 47. He was born in 1869 in Berwickshire, and received his professional education at Edinburgh University; he was Stark Scholar for post-graduate research in 1888–9, and graduated M.B., and C.M. in 1890. After holding a junior resident appointment at the Crichton Royal Institute, he was appointed house-physician to the Brompton Hospital for Consumption, and his studies in that institution afforded the subject for the thesis on phthisis for his M.D. degree, conferred upon him in 1897. In 1891 he became house-surgeon to the Cumberland Infirmary, Carlisle, and when the period of office elapsed he set up in practice in that city. He was placed on the honorary staff of the infirmary in 1897, and became full physician in 1903. He was largely instrumental in founding the Cumberland Sanatorium, for which he was secretary for many years, and he was for a time president of the Burns Club. In 1906 Dr. Bird was Chairman of the English Division of the Association and President of the Border Counties Branch in 1910. In 1896, when the annual meeting of the Association was held in Carlisle, he was active in its organization. He was universally respected by his fellow citizens, and at the funeral, on April 25th, a large and representative gathering assembled at the service held in St. Paul's Church, Carlisle. He was held in high esteem by his professional brethren, and his death is greatly

deplored by them. In addition to a large general practice he was very rapidly securing a considerable consulting practice both in the north of England and in the south of Scotland, and his opinion, founded on much careful bedside work in hospital, carried great weight both with the patients and their medical advisers. Unfortunately his death has come before he had made that due provision for his family which he would have liked, and an influential committee has been formed for the purpose of raising a memorial fund for the education of his children. Already £800 has been promised, and, in view of the widespread public sympathy shown, it is expected that a considerable sum will be obtained.

DEPUTY SURGEON-GENERAL C. J. MANSFIELD, M.V.O., M.D., R.N.

AFTER an illness of four weeks (suppurating cervical glands followed by septicaemia) Deputy Surgeon-General Mansfield died on May 7th at Haslar, where he had worked as senior medical officer of the medical section since July of last year. Born on June 19th, 1861, he was the youngest and only surviving son of the late Rev. Edward Mansfield, vicar of Highnam, near Gloucester, and was a descendant of the well-known Chief Justice of Common Pleas, and a relation of Lord Sandhurst. He was educated at Cheltenham, qualified M.B., C.M. at Aberdeen in 1883, and proceeded to M.D. in 1896. Entering the Royal Navy in 1885, he subsequently had an extensive experience in the cadet and boys' training establishments of the Royal Navy, having been surgeon in the old *Britannia* (1892–3), fleet surgeon at the Royal Naval College, Osborne (1905–9), while the present Prince of Wales was in residence, and in H.M.S. *Impregnable* (1911–13). After the last appointment he was deputy surgeon-general at the Royal Naval Barracks, Chatham (1914–15). A hard-working officer, he was most unselfish and kindly to patients and colleagues alike, and was therefore universally respected and beloved. He made some contributions to medical literature, but his memory will be mainly preserved in the affections of his numerous friends. He was created M.V.O. (Fourth Class) in 1909. The naval funeral took place at Haslar on May 10th.

JAMES GILBERT HOPE, whose death at his house, 6, Royal Circus, Edinburgh, occurred on May 6th, was 42 years of age. He passed the examinations necessary for the triple qualification (L.R.C.P., L.R.C.S.Edin., L.R.F.P.S.Glasg.) in 1898, and settled in private practice in the Comely Bank district of Edinburgh, his residence being next door to the house once occupied by Thomas Carlyle. He was one of the medical officers to the New Town Dispensary and visiting physician to the Livingstone Dispensary of the Edinburgh Medical Missionary Society. He had also served as house-surgeon to the Ear, Throat, and Nose Department and as clinical assistant to the Skin Department in the Edinburgh Royal Infirmary. He is survived by his widow and four children.

DR. JOSEPH WILLIAM SMITH, J.P., died rather suddenly on April 12th at Weaverham, Northwich, Cheshire, where he was born in 1844. He was the son of the late Dr. Samuel Smith, who had two other sons in the profession. He received his education at King's College, and took the diplomas of M.R.C.S., L.M., and L.S.A. in 1866. He became a leading practitioner in mid-Cheshire, and was highly popular with all classes, as it was recognized that his main aim was to do good to others, whilst he set before himself the highest ideals of citizenship. Dr. Joseph Smith was surgeon to the Northwich Infirmary, and an original member of the Cheshire County Council, on which he sat as representative of Weaverham from 1889 to 1913; he also held a number of public appointments. A few years ago he was presented by his numerous friends with a valuable motor car, and a garage was built for him.

DR. ALEXANDER BARR POLLOCK, who practised for thirty-five years at Hillhead, Glasgow, died on April 27th, in his 66th year, after a prolonged illness. He was the youngest son of the late Mr. William Pollock of Tradeston. Dr. Pollock graduated M.D. and C.M.Glasg. in 1879, and for a time assisted the late Professors Sir George Macleod and George Buchanan. Two of his five sons are members of the medical profession and two are serving in the army.

THE HON. JAMES HERBERT HUGH HARRISON, J.P., principal medical officer British Honduras, died suddenly at Belize, British Honduras, on May 5th, aged 52. He was educated at University College, London, and took the diplomas of M.R.C.S. and L.R.C.P. in 1889, and subsequently that of D.T.M. Liverpool. He was resident medical officer at Belize, and became a member of the Legislative Council, British Honduras. He was also a Fellow of the Royal Geographical Society.

DR. JAMES ROBERTSON died at the age of 73 at his residence, Friockheim, Forfar, at the end of April. His mother was a cousin of Mr. W. E. Gladstone. He took the diplomas of L.R.C.P.Ed. and L.F.P.S.Glasg. in 1868. Dr. Robertson was well known and highly esteemed in the district in which he had resided for many years after his retirement, as he was ever ready to give health and relief, especially to the poor. He began his professional career as a medical missionary in Calabar, and, returning to this country, practised for a number of years in Auchencairn, Ayrshire, and, later, for a shorter time in Birmingham.

DR. CHARLES JOHN GRELLET died at his residence in Hitchin, Herts, on April 25th, aged 73 years. He began his professional career as apprentice to Sir Cordy Burrows of Brighton, and afterwards studied at St. Bartholomew's Hospital. He took the diplomas of M.R.C.S. and L.S.A. in 1864. After holding the appointment of surgeon to a colliery company at Clay Cross, he became Admiralty surgeon at Oxford Ness, Suffolk, and finally, in 1871, settled at Hitchin, where he practised till his death. Dr. Grellet was surgeon to the North Herts and South Beds Hospital at Hitchin until five years ago, when he was placed on the consulting staff. He was much esteemed for his courtesy, his devotion to duty, and his zeal for the welfare of the town in which he had practised for nearly half a century. Two of his four sons practise in Hitchin, and a third, Captain R. C. Grellet, 8th Yorkshire Regiment, is now in France.

LIEUTENANT-COLONEL WOODFORDE WOODFORDE-FINDEN, Bengal Medical Service (ret.), died in a nursing home at Harrow, after a long illness, on April 27th, aged 71. He was born on July 18th, 1844, the only son of the late George Corfield Finden, of Gloucester Terrace, Hyde Park. He was educated at King's College, London, and in Paris, took the diploma of M.R.C.S. in 1865, and that of L.R.C.P.Edin. in 1866. He entered the Indian Medical Service as assistant surgeon on October 1st, 1866, became surgeon on March 1st, 1873, surgeon-major on October 2nd, 1878, and brigade surgeon lieutenant-colonel on November 2nd, 1891, and retired on December 21st, 1896. He put in all his service in military employ, chiefly in the 2nd Gurkhas. He served in the Afghan war of 1878–80, when he took part in Roberts's march from Kabul to the relief of Kandahar, and in the battle of Kandahar, being mentioned in dispatches, in G.G.O. No. 556 of 1880, receiving the medal with a clasp and the bronze star; in Burma in 1887–88, medal with clasp; and on the north-west frontier of India, in the second Miranzai campaign of 1891, clasp.

DR. MIGUEL A. FARGAS Y ROCA, professor of obstetrics and gynaecology in the University of Barcelona, was recognized as one of the leading authorities on his speciality in Spain. He was a brilliant teacher who, with scanty material, built up a successful clinic in the Hospital de Santa Cruz. He was a pioneer of asepsis in Barcelona, where, as Dr. Blanc expressed it, in referring to his death at a meeting of the Sociedad Ginelogica Española on February 23rd, he "operated aseptically in a septic hospital." Professor Fargas did good work in general surgery as well as in his own chosen field of practice. He was an honorary Fellow of the Spanish Academy of Medicine.

DR. HENRI SECRÉTAN, who died on March 5th at the age of 60, was recognized as the leading authority in Switzerland on accident assurance. He was a son of the distinguished philosopher, Charles Secrétan, and, after studying at Lausanne, Geneva, and Pisa, took his doctor's degree at the Paris Faculty in 1885. In the same year he began the practice of medicine at Lausanne. He embodied the fruits of his experience in a number of writings on acute abscess of the lung, the treatment of chronic serous effusions, hydrophobia the treatment of wounds and other subjects. Twenty years ago, when assurance against accidents first came within the sphere of practical politics in Switzerland, he turned his attention to that new field of medicine. He collected a number of articles into a volume, entitled *L'Assurance contre les accidents*, founded wholly on his own experience; it has passed through three editions. Secrétan was a man of wide culture and varied intellectual interests. He wrote on the depopulation of the Roman Empire and the Germanic invasions; the end of the empire of the West and the beginning of the Middle Ages; Christian propaganda and persecution, and other historical and sociological subjects.

The Services.

EXCHANGE.

M.O. Wessex Division, at present under canvas at Hursley Camp, would like to exchange with Territorial M.O. serving in Portsmouth district. Address No. 1750, BRITISH MEDICAL JOURNAL Office, 429, Strand, W.C.

Medical News.

WE regret to have to record the death of Dr. Arnold Lea, surgeon to St. Mary's Hospital for Women and Children, Manchester, which occurred on May 7th. We hope to publish some account of his life in an early issue.

THE Government of Panama has established a national department of Uncinariasis or Tropical Anaemia for the organization and conduct of an active campaign against the disease in the territory of the republic.

DR. PHILIP GELL GARRETT and six more nurses have gone out this week to Corfu, under the auspices of the Wounded Allies Relief Committee, of Sardinia House, Kingsway, W.C., to the relief of sick and wounded Serbian soldiers.

THE first Pan-American Congress on Childhood will be held at Buenos Aires in July next. Dr. Julieta Lauteri Renshaw is president of the organizing committee. The work of the congress will be divided among seven sections, which deal with infant legislation, industrial legislation, hygiene, education, psychology, aid to the mother and the child, and sociology.

A MEETING of mobilized chemists was held at Angoulême on April 23rd to consider the question of founding a general union of the chemists of France. The object of the proposed organization is to form a combination of all French chemists for the study of questions relating to chemistry in general, and in particular to enable French chemical science to compete successfully with the powerful German organizations.

AT the meeting of the Röntgen Society on May 2nd, Major Robert Wilson of the Canadian Medical Service showed an enclosed tungsten arc lamp which he has devised for the treatment of wounds by ultra-violet radiation. His idea, he said, had been simply to produce a lamp much more cheaply constructed than the ordinary arc lamp in use at some of the hospitals, and more effective than the Finsen-Reyn lamp. As a result of experiment, he found it best to have a pure tungsten base as one electrode and carbon cored with tungsten powder as the other. The tungsten powder was made into a paste and forced into the central cavity of the carbon, being reduced in the intense heat which followed when the arc was formed. Various pairs were tried but nothing answered so well as these. The spectroscopic results showed the issue of radiation having wave lengths of 2,000 Angström units, and the arc had the advantage of being steady and free from sputter. He had several diaphragms available, but one great desideratum was to have the application of the rays upon the part as cold as possible. In order to direct the radiation, he used a mirror having such a curvature as to give a very slightly divergent ray at a distance of 12in. from the light source.

Letters, Notes, and Answers.

THE telegraphic addresses of the BRITISH MEDICAL ASSOCIATION and JOURNAL are: (1) EDITOR of the BRITISH MEDICAL JOURNAL, *Aitiology, Westrand, London;* telephone, 2631, Gerrard. (2) FINANCIAL SECRETARY AND BUSINESS MANAGER (advertisements, etc.), *Articulate, Westrand, London;* telephone, 2630, Gerrard. (3) MEDICAL SECRETARY, *Medisecra, Westrand, London;* telephone, 2634, Gerrard. The address of the Irish office of the British Medical Association is 16, South Frederick Street, Dublin.

QUERIES.

LOCAL ENDARTERITIS.

A. F. F. asks whether it is possible to have endarteritis absolutely blocking the axillary artery in its first part. No evidence elsewhere.

*** We have been unable to find any case recorded in which a strictly localized endarteritis has blocked an artery the size of the axillary. Thrombosis following local injury seems the likeliest cause of blockage in the case; or embolism; or spread of thrombosis from aortic aneurysm—though this would be excluded if the subclavian artery was unaffected.

ANSWERS.

LEUCODERMA.

DR. S. J. ROSS (Bedford) writes in reply to "L.R.C.P.": In two cases of leucoderma which have been under my care benefit was derived by the use of a lotion of mercury perchloride (1 in 1,000). In the syphilitic variety antisyphilitic remedies will prove of value.

LETTERS, NOTES, ETC.

COLD FEET AND STUFFY HEADS.

DR. E. LLOYD OWEN (Criccieth) writes: Professor Leonard Hill, F.R.S. (writing in the BRITISH MEDICAL JOURNAL for April 8th), probably rightly regards a cold in the head (and he might add diphtheria and most other infectious diseases) as most commonly due to infecting microbes transmitted in masses to a person through the saliva spray or mucous spray of another present in more or less close propinquity in the same room, that room being most frequently at the time imperfectly ventilated, and the microbes perhaps finding a favourable opportunity to commence operations after their new host has gone out into the cold air.

Such an imperfectly ventilated room would, in Dr. Hill's opinion, be one which is over-heated (this, however, being possibly accompanied by a cold draught at the level of the feet), and in which the air is over-humid and also too still and monotonous. Dr. Hill having found that, while the rate of cooling at the foot level in the House of Commons was high, that at the head level was low, remarks that this condition of things (cold feet and stuffy head, as he terms it), is not the best for our legislators.

But is he right? It may be granted that the conditions may not be altogether comfortable, but one would think, unless the feet are so cold as to distract the attention of the owners from the matter of debate, that by allowing blood to fill the brain (not the nasal mucous membrane merely), cold or at least cool feet would tend to mental alertness. Stuffy noses do not necessarily mean stuffy brains.

Are not cool feet and a warm brain the antithesis of the conditions that obtain when one is in bed asleep? Is there not during sleep a certain amount of anaemia (in spite of the horizontal attitude), resulting from determination of blood to the feet, and indeed to every part of the body covered by the bedclothes? My own experience is that to remain in a warm, luxurious bed, with only the head out, even after a prolonged sleep of eight or nine hours, is not very favourable to hard thinking. I fancy that I have read of some eminent authors who testified that some of their best work had been done with cold feet (or rather, while their feet were cold).

So I should say that cool feet and warm heads are, instead of the worst, the very best conditions for our legislators. On this matter depends the question whether fresh air inlets should be placed as low as possible (as hitherto in the House of Commons) or at a higher level.

SCALE OF CHARGES FOR ADVERTISEMENTS IN THE BRITISH MEDICAL JOURNAL.

	£	s.	d.
Seven lines and under	0	5	0
Each additional line	0	0	8
A whole column	3	10	0
A page	10	0	0

An average line contains six words.

All remittances by Post Office Orders must be made payable to the British Medical Association at the General Post Office, London. No responsibility will be accepted for any such remittance not so safeguarded.

Advertisements should be delivered, addressed to the Manager, 429, Strand, London, not later than the first post on Wednesday morning preceding publication, and, if not paid for at the time, should be accompanied by a reference.

NOTE.—It is against the rules of the Post Office to receive *poste restante* letters addressed either in initials or numbers.